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=> s detection method
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=> s l1 and F18 labeled peptide
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=> s l1 and positron emission tomography
L3          254 L1 AND POSITRON EMISSION TOMOGRAPHY

=> s l3 and fluorine 18
L4           58 L3 AND FLUORINE 18

=> s l4 and conjugate
L5            0 L4 AND CONJUGATE

=> dup remove l4
PROCESSING COMPLETED FOR L4
L6           58 DUP REMOVE L4 (0 DUPLICATES REMOVED)

=> s l6 and antibody
L7            0 L6 AND ANTIBODY

=> s l6 and peptide
L8            2 L6 AND PEPTIDE

=> dup remove l8
PROCESSING COMPLETED FOR L8
L9            2 DUP REMOVE L8 (0 DUPLICATES REMOVED)

=> d l9 1-2 cbib abs

L9   ANSWER 1 OF 2  BIOSIS  COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:380783  Document No.: PREV200100380783. Labeling of human C-
     peptide by conjugation with N-succinimidyl-4-(18F)fluorobenzoate.
     Fredriksson, Anna (1); Johnstrom, Peter; Stone-Elander, Sharon; Jonasson,
     Per; Nygren, Per-Ake; Ekberg, Karin; Johansson, Bo-Lennart; Wahren, John.
     (1) Karolinska Pharmacy, Karolinska Hospital, S-17176, Stockholm:
     anna.fredriksson@ks.se Sweden. Journal of Labelled Compounds and
     Radiopharmaceuticals, (June, 2001) Vol. 44, No. 7, pp. 509-519. print.
     ISSN: 0362-4803. Language: English. Summary Language: English.
AB   We have labeled proinsulin connecting peptide (C-peptide
     ) with fluorine-18 (t1/2=109.7 min) in order to
     perform in vivo biodistribution and pharmacokinetic studies with position
     emission tomography (PET). This study reports the optimization of the
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conjugation labeling in the N-terminal with N-succinimidyl-4-(18F)fluorobenzoate ((18F)SFB). In preparative runs N-4-(18F)fluorobenzoyl-C-**peptide** ((18F)FB-C-**peptide**) was produced in 8-12% decay-corrected yields, counted from resolubilized (18F)F-, in less than 5h. The specific radioactivity of (18F)FB-C-**peptide**, determined using ELISA for one of the preparations, was around 70 GBq/mumol at end of synthesis.

L9 ANSWER 2 OF 2 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:388546 Document No.: PREV200100388546. In vitro and in vivo binding characteristics of two biological probes for plaques and tangles in Alzheimer's disease. Agdeppa, E. D. (1); Kepe, V. (1); Liu, J. (1); Shoghi-Jadid, K. (1); Satyamurthy, N. (1); Small, G. W.; Petric, A.; Vinters, H. V.; Huang, S. C. (1); Barrio, J. R. (1). (1) Department of Molecular and Medical Pharmacology, UCLA School of Medicine, Los Angeles, CA, 90095 USA. Journal of Labelled Compounds and Radiopharmaceuticals, (May, 2001) Vol. 44, No. Supplement 1, pp. S242-S244. print. Meeting Info.: Fourteenth International Symposium on Radiopharmaceutical Chemistry Interlaken, Switzerland June 10-15, 2001 ISSN: 0362-4803. Language: English. Summary Language: English.

=> d l6 1-58 cbib abs

L6 ANSWER 1 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:364232 Document No.: PREV200200364232. 3-deoxy-3-(18F)fluorothymidine-**positron emission tomography** for noninvasive assessment of proliferation in pulmonary nodules. Buck, Andreas K. (1); Schirrmeister, Holger; Hetzel, Martin; von der Heide, Mareike; Halter, Gisela; Glatting, Gerhard; Mattfeldt, Torsten; Liewald, Florian; Reske, Sven N.; Neumaier, Bernd. (1) Universit of Ulm, Robert-Koch-Strasse 8, D-89081, Ulm: andreas.buck@medizin.uni-ulm.de Germany. Cancer Research, (June 15, 2002) Vol. 62, No. 12, pp. 3331-3334. http://cancerres.aacrjournals.org/. print. ISSN: 0008-5472. Language: English.
AB We investigated whether uptake of the thymidine analogue 3-deoxy-3-(18F)fluorothymidine ((18F)FLT) reflects proliferation in solitary pulmonary nodules (SPNs). Thirty patients with SPNs were prospectively examined with **positron emission tomography**. Standardized uptake values were calculated for quantification of FLT uptake. Histopathology revealed 22 malignant and 8 benign lesions. Proliferation was evaluated by Ki-67 immunostaining and showed a mean proliferation fraction of 30.9% (range, 1-65%) in malignant SPNs and <5% in benign lesions. Linear regression analysis indicated a significant correlation between FLT-standardized uptake values and proliferative activity ($P < 0.0001$; $r = 0.87$). FLT uptake was specific for malignant lesions and may be used for differential diagnosis of SPNs, assessment of proliferation, and estimation of prognosis.

L6 ANSWER 2 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:364398 Document No.: PREV200200364398. Imaging atherosclerotic plaque inflammation with (18F)-fluorodeoxyglucose **positron emission tomography**. Rudd, J. H. F.; Warburton, E. A.; Fryer, T. D.; Jones, H. A.; Clark, J. C.; Antoun, N.; Johnstrom, P.; Davenport, A. P.; Kirkpatrick, P. J.; Arch, B. N.; Pickard, J. D.; Weissberg, P. L. (1). (1) ACCI, Addenbrooke's Hospital, Hills Road, Level 6, Box 110, Cambridge, CB2 2QQ: plw@mole.bio.cam.ac.uk UK. Circulation, (June 11, 2002) Vol. 105, No. 23, pp. 2708-2711. http://circ.ahajournals.org/. print. ISSN: 0009-7322. Language: English.
AB Background-Atherosclerotic plaque rupture is usually a consequence of inflammatory cell activity within the plaque. Current imaging techniques provide anatomic data but no indication of plaque inflammation. The glucose analogue (18F)-fluorodeoxyglucose (18FDG) can be used to image

inflammatory cell activity non-invasively by PET. In this study we tested whether 18FDG-PET imaging can identify inflammation within carotid artery atherosclerotic plaques. Methods and Results-Eight patients with symptomatic carotid atherosclerosis were imaged using 18FDG-PET and co-registered CT. Symptomatic carotid plaques were visible in 18FDG-PET images acquired 3 hours post-18FDG injection. The estimated net 18FDG accumulation rate (plaque/integral plasma) in symptomatic lesions was 27% higher than in contralateral asymptomatic lesions. There was no measurable 18FDG uptake into normal carotid arteries. Autoradiography of excised plaques confirmed accumulation of deoxyglucose in macrophage-rich areas of the plaque. Conclusions-This study demonstrates that atherosclerotic plaque inflammation can be imaged with 18FDG-PET, and that symptomatic, unstable plaques accumulate more 18FDG than asymptomatic lesions.

L6 ANSWER 3 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:194180 Document No.: PREV200200194180. A PET study of the pathophysiology of negative symptoms in schizophrenia. Potkin, Steven G. (1); Alva, Gustavo; Fleming, Kirsten; Anand, Ravi; Keator, David; Carreon, Danilo; Doo, Michael; Jin, Yi; Wu, Joseph C.; Fallon, James H.. (1) Department of Psychiatry and Human Behavior, University of California, Irvine, Irvine Hall, Room 166, Irvine, CA, 92697-3960: sgpotkin@uci.edu USA. American Journal of Psychiatry, (February, 2002) Vol. 159, No. 2, pp. 227-237. http://ajp.psychiatryonline.org. print. ISSN: 0002-953X. Language: English.

AB Objective: **Positron emission tomography** (PET) was used to compare cerebral metabolic patterns in schizophrenic subjects with predominantly negative symptoms (alogia, affective flattening, avolition, and attentional impairment) and in those with predominantly positive symptoms. Method: Fourteen right-handed male subjects with DSM-IV schizophrenia were assigned to groups with predominantly negative or predominantly positive symptoms on the basis of their post-drug-washout scores on the Positive and Negative Syndrome Scale. The patients were compared to seven age- and gender-matched normal volunteers. PET scans with (18F)fluorodeoxyglucose were obtained during a degraded Continuous Performance Task to measure absolute glucose metabolic rates. Statistical parametric mapping was used to estimate the regional metabolic differences between groups. Results: The subjects with predominantly negative symptoms had significant differences in glucose metabolic rates, compared to both the subjects with predominantly positive symptoms and the normal subjects. Negative symptom subjects had a lower glucose metabolic rate in the right hemisphere, especially in the temporal and ventral prefrontal cortices, compared to the other groups, and higher metabolic rates in the cerebellar cortex and in the lower deep cerebellar nuclei. Negative symptom subscale scores were negatively correlated with glucose metabolic rates for most of the brain areas that differentiated subjects with predominantly negative symptoms from those with predominantly positive symptoms. Conclusions: Schizophrenic subjects with predominantly negative symptoms have greater metabolic abnormalities than subjects with predominantly positive symptoms, particularly in frontal, temporal, and cerebellar circuitry. These results are consistent with abnormalities in corticocortical, corticobasal ganglia, mesocortical dopamine, and cerebellar-thalamic-prefrontal circuits, which may underlie the negative symptoms of schizophrenia.

L6 ANSWER 4 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:377407 Document No.: PREV200200377407. MicroLab: A FDG synthesis apparatus using a disposable cassette. Kuge, Yuji (1); Nishijima, Ken-ichi (1); Tamaki, Nagara (1). (1) Graduate School of Medicine, Hokkaido University, Kita-15 Nishi-7, Kita-ku, Sapporo, 060-8638 Japan. Radioisotopes, (April, 2002) Vol. 51, No. 4, pp. 191-194. print. ISSN: 0033-8303. Language: Japanese.

L6 ANSWER 5 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

2002:184201 Document No.: PREV200200184201. Effects of iterative reconstruction on image contrast and lesion detection in gamma camera coincidence imaging in lung and breast cancers. Paul, A. K. (1); Tatsumi, M.; Yutani, K.; Fujino, K.; Hashikawa, K.; Nishimura, T.. (1) Division of Tracer Kinetics, Graduate School of Medicine, Osaka University, 2-2, Yamadaoka, D9, Suita, Osaka, 565-0871: paul@tracer.med.osaka-u.ac.jp Japan. Nuclear Medicine Communications, (January, 2002) Vol. 23, No. 1, pp. 103-110. http://www.nuclearmedicinecomm.com/. print. ISSN: 0143-3636. Language: English.

AB To investigate the effects of iterative reconstruction in 18F-fluorodeoxyglucose (FDG) gamma camera coincidence imaging (GCI), image contrast and visual detection obtained by using the iterative ordered-subsets expectation maximization (OSEM) reconstruction, in a phantom and in patients with lung cancer and breast cancer, were compared with those obtained by using the conventional filtered backprojection (FBP) reconstruction. Images of a cylindrical phantom containing hot spheres of various sizes (10-38 mm) were acquired by **positron emission tomography** (PET) and GCI at various sphere-to-background activity ratios. Forty-one consecutive patients with biopsy-proven cancer of lung (n=20) and breast (n=21) underwent PET and GCI on the same day after intravenous injection of 370 MBq of FDG. GCI images reconstructed by the OSEM and the FBP were compared. FDG PET was considered as the standard of reference. In GCI phantom images, OSEM yielded better contrast and signal-to-noise ratio (SNR) than FBP over the range of sphere sizes. Attenuation correction improved both the image measures and sphere detection obtained by the OSEM in GCI. In the study involving patients, FDG PET depicted 41 primary tumours and 25 metastatic lymph nodes. All of the tumours >2 cm in diameter (n=25), six of the nine tumours 1.5-2.0 cm in diameter (67%), two of seven tumours <1.5 cm in diameter (29%), and 20 metastatic lymph nodes (80%) were detected in attenuation uncorrected GCI reconstructed by the OSEM as well as the FBP. The undetected lesions in GCI were identical between the OSEM and the FBP reconstructions. OSEM yielded significantly greater tumour-to-background (T/B) ratios and lower noise than FBP in GCI (T/B ratios, 4.1+-3.2 vs 3.7+-2.7, P=0.02; noise, 0.09+-0.04 vs 0.14+-0.05, P<0.0001). In conclusion, OSEM yielded better image contrast and less noise than the FBP in GCI, but the lesion detection obtained by the OSEM and the FBP in attenuation uncorrected GCI in patients with lung cancer and breast cancer were similar. Phantom data suggest the potential of OSEM for improving lesion detection in GCI after attenuation correction.

L6 ANSWER 6 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

2002:422604 Document No.: PREV200200422604. The functional neuroanatomy of Tourette's Syndrome: An FDG PET study III: Functional coupling of regional cerebral metabolic rates. Jeffries, K. J.; Schooler, C.; Schoenbach, C.; Herscovitch, P.; Chase, T. N.; Braun, A. R. (1). (1) Language Section, NIDCD, NIH, Building 10, Room 5N118A, Bethesda, MD, 20892: brauna@nidcd.nih.gov USA. Neuropsychopharmacology, (July, 2002) Vol. 27, No. 1, pp. 92-104. http://www.elsevier.com/locate/neupsychopharm. print. ISSN: 0893-133X. Language: English.

AB Functional coupling of regional cerebral metabolic rates for glucose measured with (18F)-Fluoro-2-deoxy-D-glucose PET was compared in 18 drug-free patients with Tourette's Syndrome (TS) and 16 age- and sex-matched control subjects. Pearson product-moment correlation matrices containing correlations between metabolic rates in regions sampled throughout the brain were generated independently for TS patients and controls and compared. Significant differences between Z-transformed correlation coefficients were used to identify group differences, and revealed that the connectivity of the ventral striatum was most severely affected in TS. Changes in the coupling of other brain areas-primary motor areas, somatosensory association areas, and insula-also appeared to differentiate TS patients and controls. Evaluation of interrelationships between cortico-striato-thalamo-cortical circuits revealed the existence

of functional connections between the motor and lateral orbitofrontal circuits in both groups, however, a reversal in the pattern of these interactions differentiated TS patients and controls. In controls, activity in these circuits appeared to be negatively correlated -i.e. increased activity in one is associated with relative inactivity the other. In TS patients, on the other hand, activity in the motor and lateral orbitofrontal circuits appears to be positively coupled. These results lend further credence to the hypothesis that altered limbic-motor interactions represent a pathophysiological hallmark of this disease.

L6 ANSWER 7 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:232334 Document No.: PREV200200232334. **Fluorine-18** FDG imaging in hepatocellular carcinoma using positron coincidence detection and single photon emission computed tomography. Verhoef, C.; Valkema, R.; de Man, R. A.; Krenning, E. P.; Yzermans, J. N. M. (1). (1) Department of Surgery, University Hospital Dijkzigt, Dr Molenwaterplein 40, 3015 GD, Rotterdam: yzermans@hlkd.azr.nl Netherlands. Liver, (Feb., 2002) Vol. 22, No. 1, pp. 51-56. print. ISSN: 0106-9543. Language: English.

AB Background/aims: We prospectively evaluated whether **fluorine-18** deoxyglucose (FDG) positron coincidence detection (PCD) or FDG single-photon emission computed tomography (SPECT) provides additional benefits to our conventional preoperative evaluation of lesion detection in patients suspected to have hepatocellular carcinoma (HCC). Methods: Thirteen consecutive patients with a suspected HCC underwent conventional preoperative evaluation with ultrasonography (US), triple-phase helical computed tomography (CT), superparamagnetic iron oxides (SPIO) enhanced magnetic resonance imaging (MRI) and serum alpha-fetoprotein (AFP) level. All 13 patients had an FDG-PCD and SPECT. These results were evaluated to assess the value of FDG-PCD and SPECT in addition to US, SPIO-enhanced MRI and triple-phase helical CT. Results: Ten of the 13 (77%) patients had at least one histologically confirmed HCC without extrahepatic abdominal spread. The tumors ranged in size from 1 to 8 cm and the serum AFP ranged from 3 to 30 000 mug/l. Of these 10 patients, two patients had an increased tumor F-FDG uptake (sensitivity of 20%); one patient with an AFP of 5 mug/l and a tumor size of maximum 4.5 cm and one patient with an AFP of 249 mug/l and a tumor size of maximum 2 cm. In three patients with a benign liver mass, FDG imaging with either PCD or SPECT was negative. There was no false positive finding. Conclusions: We found poor sensitivity of FDG-PCD and FDG-SPECT for the detection of HCC. There were no clear relations between AFP or tumor size and FDG uptake. Therefore, we conclude that FDG imaging with PCD or SPECT has no value in the preoperative work-up for HCC in patients with cirrhosis.

L6 ANSWER 8 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:294473 Document No.: PREV200100294473. Comparison of **positron emission tomography** scanning and sentinel node biopsy in the detection of micrometastases of primary cutaneous malignant melanoma. Acland, K. M. (1); Healy, C.; Calonje, E.; O'Doherty, M.; Nunan, T.; Page, C.; Higgins, E.; Russell-Jones, R.. (1) Skin Tumour Unit, St John's Institute of Dermatology, St Thomas' Hospital, Lambeth Palace Rd, London, SE1 7EH UK. Journal of Clinical Oncology, (May 15, 2001) Vol. 19, No. 10, pp. 2674-2678. print. ISSN: 0732-183X. Language: English. Summary Language: English.

AB Purpose: Sentinel node biopsy (SNB) is a surgical technique for detecting micrometastatic disease in the regional draining nodes. 2-**fluorine-18**-fluoro-2-deoxy-D-glucose **positron emission tomography** (FDG-PET) scanning is an imaging technique that can detect clinically undetectable metastases. This prospective study was undertaken to compare the sensitivity of FDG-PET scanning with SNB in the detection of micromatastatic malignant melanoma. Patients and Methods: Fifty consecutive patients (23 women, 27 men; mean age, 53 years) with primary melanoma >1 mm thick or lymphatic invasion were recruited (mean,

2.41 mm). Primary lesions had been narrowly excised (<1 cm). Patients underwent PET scanning followed by SNB, using a dual technique. Preoperative lymphoscintigraphy was used to identify the draining basin. Lymph nodes were examined histologically and immunostained for S100 and HMB 45. Results: The sentinel node (SN) was identified in all patients. Fourteen patients (28%) had positive SNBs, including eight patients with melanoma <1.5 mm thick. In none of these 14 patients did PET scans identify metastatic disease in the SN or draining basin. In seven patients, the PET scans were positive in other locations, and in four cases, this was suspicious of metastatic disease. However, no patient has developed recurrent melanoma (mean follow-up, 15 months). All patients with positive SNBs underwent therapeutic lymph node dissection. Further lymph node involvement was found in two patients (primary lesions, 1.3 mm and 3.5 mm thick). Conclusion: This study demonstrates the limitations of FDG-PET scanning in staging patients with primary melanoma. SNB is the only reliable method for identifying micrometastatic disease in the regional draining node.

L6 ANSWER 9 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:115635 Document No.: PREV200200115635. Prospective evaluation of the clinical value of planar bone scans, SPECT, and 18F-labeled NaF PET in newly diagnosed lung cancer. Schirrmeister, Holger (1); Glatting, Gerhard; Hetzel, Juergen; Nuessle, Karin; Arslandemir, Coskun; Buck, Andreas K.; Dziuk, Kerstin; Gabelmann, Andreas; Reske, Sven N.; Hetzel, Martin. (1) Department of Nuclear Medicine, University of Ulm, Robert-Koch Strasse 8, D-89070, Ulm Germany. Journal of Nuclear Medicine, (December, 2001) Vol. 42, No. 12, pp. 1800-1804. print. ISSN: 0161-5505. Language: English.
AB Previous studies have shown that vertebral bone metastases (BM) not seen on planar bone scintigraphy (BS) might be present on 18F-fluoride PET scans or at MRI. Therefore, we evaluated the effect of SPECT or 18F-labeled NaF PET (18F PET) imaging on the management of patients with newly diagnosed lung cancer. Methods: Fifty-three patients with small cell lung cancer or locally advanced non-small cell lung cancer were prospectively examined with planar BS, SPECT of the vertebral column, and 18F PET. MRI and all available imaging methods, as well as the clinical course, were used as reference methods. BS with and without SPECT and 18F PET were compared using a 5-point scale for receiver operating characteristic (ROC) curve analysis. Results: Twelve patients had BM. BS produced 6 false-negatives, SPECT produced 1 false-negative, and 18F PET produced no false-negatives. The area under the ROC curve was 0.779 for BS, 0.944 for SPECT, and 0.993 for 18F PET. The areas under the ROC curve of 18F PET and BS complemented by SPECT were not significantly different, and both tomographic methods were significantly more accurate than planar BS. As a result of SPECT or 18F PET imaging, clinical management was changed in 5 patients (9%) or 6 patients (11%), respectively. Conclusion: As indicated by the area under the ROC curve analysis, 18F PET is the most accurate whole-body imaging modality for screening for BM. Routinely performed SPECT imaging is practicable, is cost-effective, and improves the accuracy of BS.

L6 ANSWER 10 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:115634 Document No.: PREV200200115634. 18F-FDG PET in characterizing adrenal lesions detected on CT or MRI. Yun, Mijin; Kim, Woojin; Alnafisi, Naheel; Lacorte, Lester; Jang, Sunyoung; Alavi, Abass (1). (1) Division of Nuclear Medicine, Hospital of the University of Pennsylvania, 3400 Spruce St., 110 Donner Bldg., Philadelphia, PA, 19104 USA. Journal of Nuclear Medicine, (December, 2001) Vol. 42, No. 12, pp. 1795-1799. print. ISSN: 0161-5505. Language: English.
AB The purpose of this study was to evaluate the ability of 18F-FDG PET to characterize adrenal lesions in patients with proven or suspected cancers. Methods: A retrospective analysis was performed on 50 adrenal lesions in 41 patients, whose PET scans were done to evaluate the primary or metastatic disease. CT had shown 50 adrenal lesions in 41 patients and MRI

had revealed 13 lesions in 10 patients. There were 34 patients with proven malignancy (28 lung cancer, 3 thyroid cancer, 2 colorectal cancer, and 1 lymphoma) and 7 with lung nodules. Of the 50 lesions, 18 were eventually determined to be malignant either by histopathology (n=7) or by follow-up (n=11). The remaining 32 lesions were proven or assumed to be benign by histopathology (n=4) or clinical follow-up (n=28). Unlike previously published reports, PET was interpreted as positive if the uptake was equal to or greater than that of the liver. Results: No malignant lesion yielded a negative result on PET. Most lesions (13/18) showed significantly higher FDG uptake than that of the liver. In the remaining 5 lesions (2 metastases from neuroendocrine tumor, 2 early metastases, and 1 necrotic metastasis), FDG uptake was equal to or slightly higher than that of the liver. Of the 32 benign lesions, there were 2 lesions with uptake equal to or slightly higher than that of the liver, 3 with uptake less than the liver but more than the background, and 27 with uptake of the background. MRI identified 3 of the 13 lesions as false-positives but FDG PET correctly identified all 3 as benign. The other 10 adrenal lesions accurately diagnosed by MRI were also characterized by PET. FDG PET for characterization of adrenal lesions showed a sensitivity of 100%, a specificity of 94%, and an accuracy of 96%. Conclusion: FDG PET showed excellent diagnostic performance in differentiating adrenal lesions detected on CT or MRI. Because FDG PET has the additional advantage of evaluating the primary lesions as well as metastases, it could be cost-effective and the modality of choice for the characterization of adrenal lesions, especially in patients with malignancy.

L6 ANSWER 11 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

2002:115626 Document No.: PREV200200115626. Myocardial glucose utilization and optimization of 18F-FDG PET imaging in patients with non-insulin-dependent diabetes mellitus, coronary artery disease, and left ventricular dysfunction. Vitale, George D.; deKemp, Robert A.; Ruddy, Terrence D.; Williams, Kathryn; Beanlands, Rob S. B. (1). (1) University of Ottawa Heart Institute, H149-40 Ruskin St., Ottawa, ON, K1Y 4W7 Canada. Journal of Nuclear Medicine, (December, 2001) Vol. 42, No. 12, pp. 1730-1736. print. ISSN: 0161-5505. Language: English.

AB In patients with non-insulin-dependent diabetes mellitus (NIDDM), FDG PET imaging is often problematic because of poor uptake of FDG. Different protocols have been used; however, these have not been directly compared in patients with NIDDM who have both coronary artery disease (CAD) and severe left ventricular (LV) dysfunction, for which defining viability is most relevant. The aim of this study was to better define the optimal means of FDG PET imaging, assessed by image quality and myocardial glucose utilization rate (rMGU), among 3 imaging protocols in patients with NIDDM, CAD, and severe LV dysfunction. Methods: Ten patients with NIDDM, CAD, and severe LV dysfunction (mean ejection fraction, 29.8%+-7.1%) underwent dynamic FDG PET scanning using 3 different protocols: the standard protocol, consisting of oral glucose loading or a supplemental insulin bolus based on fasting glucose; the niacin protocol, consisting of pretreatment with niacin to lower free fatty acids; and the insulin clamp protocol, consisting of hyperinsulinemic euglycemic clamp. Image quality was satisfactory with at least 1 approach in 8 patients, who formed the primary analysis group. Results: Myocardium-to-blood-pool ratios were significantly higher with the insulin clamp (standard, 1.7+-1.2; niacin, 1.6+-1.0; insulin clamp, 3.4+-2.5 ($P<0.05$ vs. standard and niacin)). Values for rMGU were higher with the insulin clamp (standard, 0.11+-0.07 mumol/g/min; niacin, 0.12+-0.11 mumol/g/min; insulin clamping, 0.22+-0.12 mumol/g/min ($P=0.004$ vs. standard and 0.07 vs. niacin)). Conclusion: The hyperinsulinemic euglycemic clamp yielded the highest FDG PET image quality and the highest rMGU in a comparison with the standard and niacin protocols in this difficult group of patients with NIDDM, CAD, and severe LV dysfunction. The hyperinsulinemic euglycemic clamp may be the preferred method for FDG PET viability imaging in this population. Larger clinical trials are needed to assess whether accuracy is greater with this

approach.

L6 ANSWER 12 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:39870 Document No.: PREV200200039870. Imaging of striatal dopamine D2 receptors with a PET system for small laboratory animals in comparison with storage phosphor autoradiography: A validation study with 18F-(N-methyl)benperidol. Nikolaus, Susanne; Larisch, Rolf (1); Beu, Markus; Vosberg, Henning; Mueller-Gaertner, Hans-Wilhelm. (1) Department of Nuclear Medicine, Heinrich-Heine-Universitaet, Moorenstrasse 5, 40225, Dusseldorf Germany. Journal of Nuclear Medicine, (November, 2001) Vol. 42, No. 11, pp. 1691-1696. print. ISSN: 0161-5505. Language: English.
AB Several groups have developed high-resolution PET systems and shown the feasibility of in vivo studies on small laboratory animals. In this investigation, one of these systems was validated for the performance of receptor imaging studies. For this, the radiotracer concentrations obtained in the same animals with PET and with autoradiography were quantified, and the correspondence between both methods was assessed by means of correlation analysis. Methods: Striatal radioactivity was measured in 10 Sprague-Dawley rats after injection of 60 +- 10 MBq of the dopamine D2 receptor ligand 18F-(N-methyl)benperidol in 6 time frames of 6 min each. On completion of the scans, animals were killed, and their brains were removed and sectioned using a cryostat microtome. Coronal slices were subjected to storage phosphor autoradiography with BaFBr:Eu2+-coated imaging plates. Striatal radioactivity was quantified in both modalities using region-of-interest analysis and activity standards. Results: After partial-volume correction, the median of striatal radioactivity concentration measured with PET was 0.40 MBq/cm3 (25th percentile, 0.32; 75th percentile, 0.44). Radioactivity concentrations determined by means of storage phosphor autoradiography amounted to 0.42 MBq/cm3 (25th percentile, 0.24; 75th percentile, 0.51). Correlation of striatal radioactivity values yielded a Pearson correlation coefficient of 0.818 (P = 0.002). Radioactivity accumulation in Harder's glands led to an overestimation of striatal activity concentrations by approximately 5%. The median of striatal radioactivity concentration after spillover correction decreased slightly to 0.38 MBq/cm3 (25th percentile, 0.30; 75th percentile, 0.43). Correlation of striatal radioactivity values after spillover correction yielded a Pearson correlation coefficient of 0.824 (P = 0.002). Conclusion: The results show a significant positive correlation between radioactivity values obtained with PET and storage phosphor autoradiography used as the gold standard. Because we applied a selective dopamine D2 receptor radioligand and because radioactivity concentrations could be reliably quantified in the target region, we may infer that in vivo receptor binding studies will be possible in small laboratory animals.

L6 ANSWER 13 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:39862 Document No.: PREV200200039862. Imaging of blood flow and hypoxia in head and neck cancer: Initial evaluation with (15O)H2O and (18F)fluoroerythronitroimidazole PET. Lehtio, Kaisa; Oikonen, Vesa; Gronroos, Tove; Eskola, Olli; Kalliokoski, Kari; Bergman, Jorgen; Solin, Olof; Grenman, Reidar; Nuutila, Pirjo; Minn, Heikki (1). (1) Turku PET Centre, Turku University Central Hospital, FIN-20521, Turku Finland. Journal of Nuclear Medicine, (November, 2001) Vol. 42, No. 11, pp. 1643-1652. print. ISSN: 0161-5505. Language: English.
AB Hypoxia is a characteristic feature of malignant tumors that should be evaluated before the start of therapy. 18F-labeled fluoroerythronitroimidazole (FETNIM) is a possible candidate for imaging tumor hypoxia with PET. Quantitative analysis of (18F)FETNIM uptake in vivo is necessary before proceeding to assays predicting hypoxia. Methods: Eight patients with untreated head and neck squamous cell carcinoma were enrolled in the study. All patients underwent dynamic PET imaging with (18F)FETNIM, coupled with measurements of blood flow with (15O)H2O and blood volume with (15O)CO. The metabolically active tumor volume was

determined from (18F)FDG PET performed on a separate day. (18F)FETNIM uptake in the tumor was correlated with that in neck muscles and arterial plasma and compared with the findings of other PET studies. Results: Blood flow in tumor was 5- to 30-fold greater than in muscle, in contrast to blood volume, which did not significantly differ in the 2 tissues. With (18F)FETNIM PET, muscle activity remained invariably less than plasma activity, whereas activity in whole tumors was always greater than that in muscle. In 4 instances, the maximum tumor uptake of (18F)FETNIM was 1.2-2.0 times higher than plasma activity in the late dynamic phase. A kinetic model developed for calculation of distribution volume of reversibly trapping tracers was successfully applied in the (18F)FETNIM studies. Tumor distribution volume correlated strongly with the standardized uptake value of (18F)FETNIM between 60 and 120 min and with blood flow but not with the standardized uptake value of (18F)FDG. The relationship between (18F)FETNIM uptake and the blood flow of the tumor was less obvious on a pixel-by-pixel level. Conclusion: Uptake of (18F)FETNIM in head and neck cancer is highly variable and seems to be governed by blood flow at least in the early phase of tissue accumulation. Maximum tumor-to-muscle tracer uptake ratios > 180 min were in the range of 1-4, comparing favorably with those reported previously for (18F)fluoromisonidazole. Assessment of the distribution volume of (18F)FETNIM after the initial blood-flow phase is feasible for subsequent evaluation of hypoxia-specific retention.

L6 ANSWER 14 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

2002:39859 Document No.: PREV200200039859. Image-derived input functions for determination of MRGlu in cardiac 18F-FDG PET scans. van der Weerdt, Arno P. (1); Klein, Lucas J.; Boellaard, Ronald; Visser, Cees A.; Visser, Frans C.; Lammertsma, Adriaan A.. (1) Department of Cardiology, VU Medical Center, Room 6N120, 1007 MB, Amsterdam Netherlands. Journal of Nuclear Medicine, (November, 2001) Vol. 42, No. 11, pp. 1622-1629. print. ISSN: 0161-5505. Language: English.

AB Image-derived input functions (IDIF) are frequently used in cardiac 18F-FDG PET studies for determination of the myocardial metabolic rate of glucose (MRGlu). The purpose of this study was to assess which vascular structure is most suited for defining the IDIF, using online arterial blood sampling (AS) as the gold standard. Methods: In 18 patients with ischemic heart disease, 370 MBq FDG were injected during a hyperinsulinemic euglycemic clamp. Studies were performed with a Siemens/CTI HR+ PET scanner using a dynamic scanning protocol. A fully automated blood-sampling device was used for continuous AS. IDIF were obtained using regions of interest (ROIs) of 3 different sizes defined on the left ventricle (LV), left atrium (LA), ascending aorta (AA), and descending aorta (DA). MRGlu was calculated with all input functions. Ratios between MRGlu obtained with IDIF and AS were calculated for each patient. Results: Time-activity curves from smaller ROIs suffered more from statistical noise with only a modest reduction of spillover effects, which led to more variation in calculated MRGlu. Mean ratios of MRGlu obtained with IDIF and AS were close to 1 when AA and DA (0.97 +- 0.07 and 1.00 +- 0.11, respectively) were used to define the input function. However, when LA and LV were used, mean ratios were 0.81 +- 0.06 and 0.79 +- 0.08, respectively, reflecting a significant underestimation of MRGlu. The use of AA for defining the input function resulted in the best agreement with AS and the smallest interobserver variation. Conclusion: The ascending aorta is the structure of choice for defining IDIF and a large ROI (diameter, approximately 15 mm) should be used to minimize the effects of statistical noise.

L6 ANSWER 15 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

2002:39857 Document No.: PREV200200039857. The utility of 18F-FDG PET for suspected recurrent non-small cell lung cancer after potentially curative therapy: Impact on management and prognostic stratification. Hicks, Rodney J. (1); Kalff, Victor; MacManus, Michael P.; Ware, Robert E.; McKenzie,

Allan F.; Matthews, Jane P.; Ball, David L.. (1) Centre for Positron Emission Tomography, Peter MacCallum Cancer Institute, 12 Cathedral Pl., East Melbourne, Victoria, 3002 Australia. Journal of Nuclear Medicine, (November, 2001) Vol. 42, No. 11, pp. 1605-1613. print. ISSN: 0161-5505. Language: English.

AB After potentially curative therapy of non-small cell lung cancer (NSCLC), masses or symptoms suggestive of relapse are common but may be difficult to characterize. Early detection is important because salvage therapies are available for localized recurrence. This study evaluated whether 18F-FDG PET is useful and predictive of outcome in this setting. Methods: For 63 consecutive patients with suspected relapse >6 mo after definitive treatment of NSCLC, the apparent extent of disease on conventional restaging was compared with that on FDG PET. Patients with already confirmed systemic metastases were excluded unless locally aggressive treatment of these was being considered. Serial imaging and pathologic results were obtained during a median follow-up of 19 mo to validate diagnostic findings. Prognostic significance was tested using the Cox proportional hazards regression model. Results: PET had positive findings in 41 of 42 patients with confirmed relapse (sensitivity, 98%). No disease was evident during a minimum follow-up of 12 mo in 14 of 15 patients with clinically suspected relapse but negative PET findings (negative predictive value, 93%). PET induced a major management change in 40 patients (63%), including 6 whose treatment was changed from curative to palliative, 3 whose treatment was changed from palliative to curative, and 9 for whom negative PET findings prevented active management. Both the presence ($P = 0.012$) and the extent ($P < 0.0001$) of relapse on PET were highly significant prognostic factors. There was also significant prognostic stratification based on the treatment delivered after the PET study ($P = 0.011$), but after adjustment for this treatment, PET status remained highly predictive of survival. Conclusion: PET better assesses the status of disease and stratifies prognosis than does conventional staging, affects patient management, and should be incorporated into paradigms for suspected recurrence of NSCLC.

L6 ANSWER 16 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

2002:39856 Document No.: PREV200200039856. 18F-FDG PET provides high-impact and powerful prognostic stratification in staging newly diagnosed non-small cell lung cancer. Hicks, Rodney J. (1); Kalff, Victor; MacManus, Michael P.; Ware, Robert E.; Hogg, Annette; McKenzie, Allan F.; Matthews, Jane P.; Ball, David L.. (1) Centre for Positron Emission Tomography, Peter MacCallum Cancer Institute, 12 Cathedral Pl., East Melbourne, Victoria, 3002 Australia. Journal of Nuclear Medicine, (November, 2001) Vol. 42, No. 11, pp. 1596-1604. print. ISSN: 0161-5505. Language: English.

AB Survival of lung cancer patients remains poor despite increasingly aggressive treatment. Conventional staging has well-described limitations. 18F-FDG PET has been shown to stage lung cancer more accurately than does CT scanning, but the impact on patient treatment and outcome is poorly defined. This study evaluated this impact in routine clinical practice within a tertiary oncology facility. Methods: For 153 consecutive patients with newly diagnosed non-small cell lung cancer, the treatment plan based on conventional staging methods was compared with the treatment plan based on incorporation of PET findings. Survival was analyzed using the Cox proportional hazards regression model. Results: For broad groupings of stage, 10% of cases were downstaged and 33% upstaged by PET. When assessable, the PET stage was confirmed in 89% of patients. PET had a high impact on 54 patients (35%), including 34 whose therapy was changed from curative to palliative, 6 whose therapy was changed from palliative to curative, and 14 whose treatment modality was changed but not the treatment intent. For 39 patients (25%), a previously selected therapy was altered because of the PET findings. The Cox model indicated that the pre-PET stage was significantly associated with survival ($P = 0.013$) but that the post-PET stage provided much stronger prognostic stratification ($P < 0.0001$) and remained significant after adjustment for treatment

delivered. Conclusion: Staging that incorporated PET provided a more accurate prognostic stratification than did staging based on conventional investigations. Further, the additional information provided by PET significantly and appropriately changed management in the majority of patients.

L6 ANSWER 17 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:39855 Document No.: PREV200200039855. Metabolic network abnormalities in early Huntington's disease: An (18F)FDG PET study. Feigin, Andrew; Leenders, Klaus L.; Moeller, James R.; Missimer, John; Kuenig, Gabriella; Spetsieris, Phoebe; Antonini, Angelo; Eidelberg, David (1). (1) Center for Neuroscience Research, North Shore Long Island Jewish Research Institute, 350 Community Dr., Manhasset, NY, 11030 USA. Journal of Nuclear Medicine, (November, 2001) Vol. 42, No. 11, pp. 1591-1595. print. ISSN: 0161-5505. Language: English.

AB The identification of discrete patterns of altered functional brain circuitry in preclinical Huntington's disease (HD) gene carriers is important to understanding the pathophysiology of this disorder and could be useful as a biologic disease marker. The purpose of this study was to use PET imaging of regional cerebral glucose metabolism to identify abnormal networks of brain regions that are specifically related to the preclinical phase of HD. Methods: Eighteen presymptomatic HD gene carriers, 13 early-stage HD patients, and 8 age-matched gene-negative relatives were scanned using PET with (18F)FDG to quantify regional glucose utilization. A network modeling strategy was applied to the FDG PET data to identify disease-related regional metabolic covariance patterns in the preclinical HD cohort. The outcome measures were the region weights defining the metabolic topography of the HD gene carriers and the subject scores quantifying the expression of the pattern in individual subjects. Results: Network analysis of the presymptomatic carriers and the gene-negative control subjects revealed a significant metabolic covariance pattern characterized by caudate and putamenal hypometabolism but also included mediotemporal metabolic reductions as well as relative metabolic increases in the occipital cortex. Subject scores for this pattern were abnormally elevated in the preclinical group compared with those of the control group ($P < 0.005$) and in the early symptomatic group compared with those of the presymptomatic group ($P < 0.005$). Conclusion: These findings show that FDG PET with network analysis can be used to identify specific patterns of abnormal brain function in preclinical HD. The presence of discrete patterns of metabolic abnormality in preclinical HD carriers may provide a useful means of quantifying the rate of disease progression during the earliest phases of this illness.

L6 ANSWER 18 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:413720 Document No.: PREV200100413720. 18F-FDG PET detection of colonic adenomas. Yasuda, Seiei (1); Fujii, Hirofumi; Nakahara, Tadaki; Nishiumi, Noboru; Takahashi, Wakoh; Ide, Michiru; Shohtsu, Akira. (1) Department of Surgery, Tokai University School of Medicine, Kanagawa, 259-1193 Japan. Journal of Nuclear Medicine, (July, 2001) Vol. 42, No. 7, pp. 989-992. print. ISSN: 0161-5505. Language: English. Summary Language: English.

AB The adenomatous polyp of the colon is clinically important as a precursor of colonic cancer. The aim of this preliminary study was to evaluate the potential usefulness of 18F-FDG PET for detecting adenomatous polyps of the colon. Methods: We performed a retrospective study of 110 subjects who underwent both PET study and total colonoscopy. On nonattenuation-corrected PET images, focal distinct FDG accumulation along the large intestine was considered a positive finding, and the PET results were compared with colonoscopic findings. Histology and adenoma size were determined by polypectomy. Results: Fifty-nine adenomatous polyps, 5-30 mm in size, were found in 30 subjects by total colonoscopy. PET findings were positive for 14 of the 59 adenomas (24%). The positivity rate for PET images rose with the increase in size of the adenomas; it was 90% in adenomas (9/10) that were gtoreq13 mm. The overall false-positive rate was

5.5% (6/110 subjects). Conclusion: Increased glucose metabolism is observed in colonic adenomas, and detectability with PET increases with the increase in adenoma size. Adenomas are premalignant lesions, and it is important to realize that colonic adenomas may be found incidentally during an FDG PET study.

L6 ANSWER 19 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:530860 Document No.: PREV200100530860. F-18-fluoro-deoxy-glucose **positron-emission tomography** scanning in detection of local recurrence after radiotherapy for laryngeal/pharyngeal cancer. Terhaard, Chris H. (1); Bongers, Vivian; van Rijk, Peter P.; Hordijk, Gerrit-Jan. (1) Department of Radiotherapy, University Medical Center Utrecht, Heidelberglaan 100, 3584 CX, Utrecht Netherlands. Head & Neck, (November, 2001) Vol. 23, No. 11, pp. 933-941. print. ISSN: 1043-3074. Language: English. Summary Language: English.

AB Background: The objective of this investigation was to determine whether F18-fluoro-deoxy-glucose (FDG) **positron-emission tomography** (PET) could differentiate between local recurrence and late radiation effects after radiotherapy for laryngeal/pharyngeal cancer. Methods: In a prospective study of 75 patients (67 larynx, eight oro/hypopharynx), 160 laryngoscopies and 109 FDG PET scans were performed on the head and neck region. The mean follow-up time after the first FDG PET scan was 23 months (minimum 1 year). Results: Local recurrence was diagnosed in 37 patients: 19 after the first biopsy and 18 after follow-up biopsies. For all of the negative initial FDG scans (27), the biopsies that were taken at the same time were negative and no recurrence was seen for at least 1 year. The first FDG scan was a true positive in 34 of 48 patients. In 12 of the 14 patients with false-positive results, FDG scans were repeated; a decreased FDG uptake was found in 9 of the 12. The sensitivity and specificity of the first scan were respectively 92% and 63%; including subsequent FDG scans, the rates were 97% and 82%, respectively. Conclusions: When a local recurrence is suspected after radiotherapy for cancer of the larynx/pharynx, an FDG PET scan should be the first diagnostic step. No biopsy is needed if the scan is negative. If the scan is positive and the biopsy negative, a decreased FDG uptake measured in a follow-up scan indicates that a local recurrence is unlikely.

L6 ANSWER 20 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:179156 Document No.: PREV200100179156. 2-(**fluorine-18**)fluoro-2-deoxy-D-glucose **positron emission tomography** in the detection and staging of malignant lymphoma: A bicenter trial. Buchmann, Inga (1); Reinhardt, Michael; Elsner, Klaus; Bunjes, Donald; Altehoefer, Carsten; Finke, Juergen; Moser, Ernst; Glatting, Gerhard; Kotzerke, Joerg; Guhlmann, Carl A.; Schirrmeister, Holger; Reske, Sven N.. (1) Abteilung fuer Nuklearmedizin, Universitaetsklinik Ulm, Robert-Koch-Strasse 8, 89075, Ulm: inga.buchmann@medizin.uni-ulm.de Germany. Cancer, (March 1, 2001) Vol. 91, No. 5, pp. 889-899. print. ISSN: 0008-543X. Language: English. Summary Language: English.

AB BACKGROUND. The authors undertook a prospective evaluation of the clinical value of 2-fluoro (18-)-2-deoxyglucose **positron emission tomography** (FDG-PET) in the detection and staging of malignant lymphoma compared with computed tomography (CT) and bone marrow biopsy (BMB). METHODS. Fifty-two consecutive patients with untreated malignant lymphoma were evaluated prospectively in a bicenter study. FDG-PET, CT, and BMB were performed for investigating lymph node/extranodal manifestations and bone marrow infiltration. Thirty-three percent of the discrepant results were verified by biopsy, magnetic resonance imaging, or clinical follow-up (range, 4-24 month). RESULTS. Altogether, 1297 anatomic regions (lymph nodes, organs, and bone marrow) were evaluated. FDG-PET and CT scans were compared by receiver operating characteristic (ROC) curve analysis. The area under the ROC curve were as follows: lymph nodes, 0.996

(PET) and 0.916 (CT); extranodal, 0.999 (PET) and 0.916 (CT); supradiaphragmatic, 0.996 (PET) and 0.905 (CT); and infradiaphragmatic, 0.999 (PET) and 0.952 (CT). In these analyses, FDG-PET was significantly superior to CT ($P < 0.05$), except in infradiaphragmatic regions, in which the two methods produced equivalent results. In detecting bone marrow infiltration, FDG-PET was superior to CT and was equivalent to BMB. In 4 of 52 patients (8%), FDG-PET led to an upstaging and a change of therapy. CONCLUSIONS. Noninvasive FDG-PET is very accurate in the staging of malignant lymphoma. Compared with standard staging modalities (CT and BMB), PET was significantly superior and led to changes in the therapy regimen for 8% of patients.

L6 ANSWER 21 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:432609 Document No.: PREV200100432609. Clinical role of F-18 fluorodeoxyglucose **positron emission tomography** for detection and management of renal cell carcinoma. Ramdave, Shakher (1); Thomas, Gwynne W.; Berlangieri, Salvatore U.; Bolton, Damien M.; Davis, Ian; Henri-Tochon-Danguy; MacGregor, Duncan; Scott, Andrew M.. (1) Department of Nuclear Medicine and Centre for PET, Austin and Repatriation Medical Centre, Heidelberg Australia. Journal of Urology, (September, 2001) Vol. 166, No. 3, pp. 825-830. print. ISSN: 0022-5347. Language: English. Summary Language: English.
AB Purpose: We evaluate the accuracy of F-18 fluorodeoxyglucose (FDG)-**positron emission tomography** (PET) for staging and management of renal cell carcinoma. Materials and Methods: FDG-PET was performed in 25 patients with known or suspected primary renal tumors and/or metastatic disease and compared with conventional imaging techniques, including computerized tomography (CT). Histopathological confirmation was obtained in 18 patients and confirmation of the disease was by followup in the remainder. The impact of FDG-PET on disease management was also assessed. Results: Of the 17 patients with known or suspected primary tumors FDG-PET was true positive in 15, true negative in 1 and false-negative in 1. Comparative CT was true positive in 16 patients and false-positive in 1. The accuracy of FDG-PET and CT was similar (94%). All patients would have undergone radical nephrectomy after conventional imaging findings but FDG-PET results altered treatment decisions for 6 (35%), of whom 3 underwent partial nephrectomy and 3 avoided surgery due to confirmation of benign pathology or detection of unsuspected metastatic disease. Of the 8 cases referred for evaluation of local recurrence and/or metastatic disease FDG-PET changed treatment decisions in 4 (50%), with disease up staged in 3 and recurrence excluded in 1. Compared with CT, FDG-PET was able to detect local recurrence and distant metastases more accurately and differentiated recurrence from radiation necrosis. Conclusions: FDG-PET accurately detected local disease spread and metastatic disease in patients with renal cell carcinoma and altered treatment in 40%. FDG-PET may have a role in the diagnostic evaluation of patients with renal cell carcinoma preoperatively and staging of metastatic disease.

L6 ANSWER 22 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:168490 Document No.: PREV200100168490. Metastatic lymph nodes in patients with cervical cancer: Detection with MR imaging and FDG PET. Reinhardt, Michael J. (1); Ehritt-Braun, Claudia; Vogelgesang, Dagmar; Ihling, Christian; Hoegerle, Stefan; Mix, Michael; Moser, Ernst; Krause, Thomas M.. (1) Department of Nuclear Medicine, University Hospital of Bonn, Sigmund-Freud-Strasse 25, D-53127, Bonn: michael.reinhardt@meb.uni-bonn.de Germany. Radiology, (March, 2001) Vol. 218, No. 3, pp. 776-782. print. ISSN: 0033-8419. Language: English. Summary Language: English.
AB PURPOSE: To compare the diagnostic accuracy of magnetic resonance (MR) imaging with that of **positron emission tomography** (PET) with 2-(**fluorine 18**)fluoro-2-deoxy-D-glucose (FDG) for detecting metastatic lymph nodes in patients with cervical cancer. MATERIALS AND METHODS: Before radical

hysterectomy and pelvic lymphadenectomy in 35 patients with International Federation of Gynecology and Obstetrics stage IB or II cervical cancer, abdominal FDG-PET and MR imaging were performed. Malignancy criteria were a lymph node diameter of 1 cm or more at MR imaging and a focally increased FDG uptake at PET. The findings of FDG-PET and MR imaging were compared with histologic findings. RESULTS: Histologic examination revealed pN0-stage cancer in 24 patients and pN1-stage cancer in 11 patients. On a patient basis, node staging resulted in sensitivities of 0.91 with FDG-PET and 0.73 with MR imaging and specificities of 1.00 with FDG-PET and 0.83 with MR imaging. The positive predictive value (PPV) of FDG-PET was 1.00 and that of MR imaging, 0.67 (not significant). The metastatic involvement of lymph node sites was identified at FDG-PET with a PPV of 0.90; at MR imaging, 0.64 ($P < .05$, Fisher exact test). CONCLUSION: Metabolic imaging with FDG-PET is an alternative to morphologic MR imaging for detecting metastatic lymph nodes in patients with cervical cancer.

L6 ANSWER 23 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:73488 Document No.: PREV200200073488. Methodological developments for application to the study of physiological boron and to boron neutron capture therapy. Thellier, Michel (1); Chevallier, Arlette; His, Isabelle; Jarvis, Mike C.; Lovell, Mark A.; Ripoll, Camille; Robertson, David; Sauerwein, Wolfgang; Verdus, Marie-Claire. (1) Laboratoire des Processus Integratifs Cellulaires, Faculte des Sciences, CNRS (UMR 6037), Universite de Rouen, F-76821, Mont-Saint-Aignan Cedex: Michel.Thellier@univ-rouen.fr France. Journal of Trace and Microprobe Techniques, (November, 2001) Vol. 19, No. 4, pp. 623-657. print. ISSN: 0733-4680. Language: English.

AB The combination of immunogold labelling with electron microscopy or the direct detection of boron by electron energy loss spectrometry have the best lateral resolution for the imaging of boron or boron binding sites in tissues at the sub-cellular level. However these methods do not discriminate the boron isotopes. A number of physical methods make it possible to combine analytical imaging with isotopic labelling for boron studies in biological material. Secondary ion mass spectrometry has the potential to isotopically localise virtually any element with a resolution of apprx250 nm with conventional instruments and 20-50 nm with prototype instruments or with the NanoSIMS50; although SIMS has a relatively poor sensitivity for boron detection in biological matrices, boron imaging in plant samples is possible. Laser microprobe mass analysis also has the potential to detect boron isotopes with a lateral resolution of 3 to 5 mum and a detection limit of a few tens of mug/g with the conventional instruments and of the order of 1 ng/g with the new LARIMP system; although mass resolution of LMMS is in general not very good, the risk of interference by other ions at the level of boron masses is limited. Neutron capture radiography is probably the easiest technique for boron imaging and boron isotopic labelling studies in tissues and sometimes at the sub-cellular level, although it detects only 10B isotopes. Nuclear reactions with charged particles (nuclear reaction analysis) have the potential to detect both isotopes of boron and carry out absolute boron concentration measurements with minimal matrix effects, limited risk of interference by other nuclides, a lateral resolution of a few mum at the best, a detection limit better than 1 mug/g for 11B, of the order of 10 mug/g for 10B and an accuracy of 1 to 2% in the determination of 10B/11B isotopic ratios. Preventing the diffusion of possibly mobile forms of boron during the preparation of the biological specimens is still a difficult problem for most techniques. The appropriate application of those methods, or their mutual combination or combination with other methods has made it possible: i) to yield information about the boron concentrations and fluxes in sub-cellular compartments and support the view that the cellular transport of boron was mainly passive under the experimental conditions under consideration; ii) to image the distribution of boron and of boron binding sites in tissues and sometimes at the sub-cellular level; iii) to study the short-distance diffusion and the

long-distance transport of boron in plants and to assess the role of the phloem in the long-distance transport in various plant species; iv) to determine the origin (seed reserves vs uptake by roots) of the boron present in different sub-cellular compartments. For boron neutron capture therapy of cancers, invasive techniques of boron detection and imaging are comparable to the techniques described above for the study of physiological boron; for clinical applications, non-invasive techniques to follow 10B-compounds in vivo are being developed, especially by targeting of such compound by 18F and the use of **positron emission tomography** or by direct detection of 10B by magnetic resonance imaging.

L6 ANSWER 24 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:380783 Document No.: PREV200100380783. Labeling of human C-peptide by conjugation with N-succinimidyl-4-(18F)fluorobenzoate. Fredriksson, Anna (1); Johnstrom, Peter; Stone-Elander, Sharon; Jonasson, Per; Nygren, Per-Ake; Ekberg, Karin; Johansson, Bo-Lennart; Wahren, John. (1) Karolinska Pharmacy, Karolinska Hospital, S-17176, Stockholm: anna.fredriksson@ks.se Sweden. Journal of Labelled Compounds and Radiopharmaceuticals, (June, 2001) Vol. 44, No. 7, pp. 509-519. print. ISSN: 0362-4803. Language: English. Summary Language: English.
AB We have labeled proinsulin connecting peptide (C-peptide) with **fluorine-18** (t1/2=109.7 min) in order to perform in vivo biodistribution and pharmacokinetic studies with position emission tomography (PET). This study reports the optimization of the conjugation labeling in the N-terminal with N-succinimidyl-4-(18F)fluorobenzoate ((18F)SFB). In preparative runs N-4-(18F)fluorobenzoyl-C-peptide ((18F)FB-C-peptide) was produced in 8-12% decay-corrected yields, counted from resolubilized (18F)F-, in less than 5h. The specific radioactivity of (18F)FB-C-peptide, determined using ELISA for one of the preparations, was around 70 GBq/mumol at end of synthesis.

L6 ANSWER 25 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:85570 Document No.: PREV200100085570. Prognostic value of **positron emission tomography** (PET) with **fluorine-18** fluorodeoxyglucose ((18F)FDG) after first-line chemotherapy in non-Hodgkin's lymphoma: Is (18F)FDG-PET a valid alternative to conventional diagnostic methods. Spaepen, Karoline; Stroobants, Sigrid; Dupont, Patrick; Van Steenweghen, Steven; Thomas, Jose; Vandenberghe, Peter; Vanuytsel, Lucien; Bormans, Guy; Balzarini, Jan; De Wolf-Peeters, Christine; Mortelmans, Luc (1); Verhoef, Gregor. (1) Department of Nuclear Medicine, University Hospital Gasthuisberg, Herestraat 49, B-3000, Leuven: luc.mortelmans@uz.kuleuven.ac.be Belgium. Journal of Clinical Oncology, (January 15, 2001) Vol. 19, No. 2, pp. 414-419. print. ISSN: 0732-183X. Language: English. Summary Language: English.
AB Purpose: A complete remission (CR) after first-line therapy is associated with longer progression-free survival (PFS). However, defining CR is not always easy because of the presence of residual masses. Metabolic imaging with **fluorine-18** fluorodeoxyglucose ((18F)FDG) **positron emission tomography** (PET) offers the ability to differentiate between viable and fibrotic inactive tissue. In this study, we evaluated the value of PET in detecting residual disease and, hence, predicting relapse after first-line treatment in patients with non-Hodgkin's lymphoma (NHL). Patients and Methods: Ninety-three patients with histologically proven NHL, who underwent a whole-body (18F)FDG-PET study after completion of first-line chemotherapy and who had follow-up of at least 1 year, were included. Persistence or absence of residual disease on PET was related to PFS using Kaplan-Meier survival analysis. Results: Sixty-seven patients showed a normal PET scan after first-line chemotherapy; 56 of 67 remained in CR, with a median follow-up of 653 days. Nine of these patients with a residual mass considered as unconfirmed CR received additional radiotherapy. Only 11 of 67 patients

relapsed (median PFS, 404 days). Persistent abnormal (18F)FDG uptake was seen in 26 patients, and all of them relapsed (median PFS, 73 days). Because standard restaging also suggested residual disease, 12 patients received immediate secondary treatment. In 14 of 26 patients, only PET predicted persistent disease. From these patients, relapse was proven either by biopsy (n = 8) or by progressive disease on computed tomography or magnetic resonance imaging (n = 6). Conclusion: Persistent abnormal (18F)FDG uptake after first-line chemotherapy in NHL is highly predictive for residual or recurrent disease. In relapsing patients, PFS was significantly shorter after a positive scan than after a negative scan.

L6 ANSWER 26 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:328204 Document No.: PREV200100328204. Detection of isolated distant metastasis in soft tissue sarcoma by fluorodeoxyglucose **positron emission tomography**: Case report. Ben Arush, Myriam Weyl (1); Israel, Ora; Kedar, Zohar; Goralnik, Ludmilla; Best, Lael-Anson; Meushar, Nathanel; Elhasid, Ronit; Postovsky, Sergey. (1) The Miri Shitrit Department of Pediatric Hemato-Oncology, Rambam Medical Center, Haifa, 31096: m_benarush@rambam.health.gov.il Israel. Pediatric Hematology and Oncology, (June, 2001) Vol. 18, No. 4, pp. 295-298. print. ISSN: 0888-0018. Language: English. Summary Language: English.
AB Fluorodeoxyglucose (FDG), labeled with F-18, is a glucose analog that accumulates in cells in proportion to the rate of glucose metabolism, and increased carbohydrate metabolism has been recognized as a feature of malignant cells versus normal cells. In addition, it permits the detection of metastases not discovered by bone scan. Although detection of the primary site of disease is usually accomplished well with conventional techniques, the performance of FDG **positron emission tomography** (PET) may be useful to determine metastases that are not clinically evident. The authors describe a case of early detection of distant metastases by FDG-PET in a young patient diagnosed with rhabdomyosarcoma of the hand.

L6 ANSWER 27 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:388546 Document No.: PREV200100388546. In vitro and in vivo binding characteristics of two biological probes for plaques and tangles in Alzheimer's disease. Agdeppa, E. D. (1); Kepe, V. (1); Liu, J. (1); Shoghi-Jadid, K. (1); Satyamurthy, N. (1); Small, G. W.; Petric, A.; Vinters, H. V.; Huang, S. C. (1); Barrio, J. R. (1). (1) Department of Molecular and Medical Pharmacology, UCLA School of Medicine, Los Angeles, CA, 90095 USA. Journal of Labelled Compounds and Radiopharmaceuticals, (May, 2001) Vol. 44, No. Supplement 1, pp. S242-S244. print. Meeting Info.: Fourteenth International Symposium on Radiopharmaceutical Chemistry Interlaken, Switzerland June 10-15, 2001 ISSN: 0362-4803. Language: English. Summary Language: English.

L6 ANSWER 28 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:571608 Document No.: PREV200100571608. Kinetics of 18F-fluoroethyl-L-tyrosine (FET) in patients with brain tumors. Weber, W. A. (1); Wester, H.-J. (1); Herz, M. (1); Grosu, A. L. (1); Dzewas, B. (1); Ziegler, S. I. (1); Schwaiger, M. (1). (1) Technische Universitaet Muenchen, Munich Germany. Journal of Nuclear Medicine, (May, 2001) Vol. 42, No. 5 Supplement, pp. 214P-215P. print. Meeting Info.: 48th Annual Meeting of the Society of Nuclear Medicine Toronto, Ontario, Canada June 23-27, 2001 ISSN: 0161-5505. Language: English. Summary Language: English.

L6 ANSWER 29 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:521768 Document No.: PREV200100521768. Synthesis and evaluation of fluoropyridyl analogs of cortivazol as potential radiolabeled glucocorticoids. Lerum, Ronald (1); Persaud, Prita (1); Oluyemi, Aledejebi (1); Labaree, David C.; Zhang, Jingxin; Hochberg, Richard B.; Hoyte, Robert M. (1). (1) Department of Chemistry, State University of New York, Old Westbury, NY, 11568 USA. Abstracts of Papers American Chemical

Society, (2001) Vol. 222, No. 1-2, pp. MEDI200. print. Meeting Info.: 222nd National Meeting of the American Chemical Society Chicago, Illinois, USA August 26-30, 2001 American Chemical Society. ISSN: 0065-7727. Language: English. Summary Language: English.

L6 ANSWER 30 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:244554 Document No.: PREV200200244554. Value of iterative reconstruction, attenuation correction, and image fusion in the interpretation of FDG PET images with an integrated dual-head coincidence camera and x-ray-based attenuation maps. Delbeke, Dominique (1); Martin, William H.; Patton, James A.; Sandler, Martin P.. (1) Section of Nuclear Medicine, Department of Radiology and Radiological Sciences, Vanderbilt University Medical Center, 21st Ave S and Garland, Nashville, TN, 37232-2675: dominique.delbeke@mcmail.vanderbilt.edu USA. Radiology, (January, 2001) Vol. 218, No. 1, pp. 163-171. print. ISSN: 0033-8419. Language: English.
AB PURPOSE: To compare lesion detectability on 2-(**fluorine-18**)fluoro-2-deoxy-D-glucose (FDG) positron emission tomographic (PET) images obtained with a dual-head coincidence (DHC) gamma camera equipped with an integrated x-ray tube-based transmission system (a) with images reconstructed with filtered back projection (FBP) and those reconstructed with an iterative reconstruction algorithm based on coincidence-ordered subsets expectation maximization (COSEM), (b) with images reconstructed without and with attenuation correction (AC), and (c) with images reconstructed without and with image fusion for anatomic mapping. MATERIALS AND METHODS: Thirty-five patients known or suspected to have malignancy underwent initial imaging with a dedicated **positron emission tomography** (PET) unit after injection of 10 mCi (370 MBq) of FDG. Transmission computed tomographic (CT) scans and FDG emission images were then obtained with the DHC camera. The proportion of lesions detected on the various sets of FDG DHC images was determined by using FDG PET as the standard of reference. Imaging findings were correlated with those from histologic examination and clinical follow-up, in consultation with the respective referring physicians. RESULTS: FDG PET depicted 78 lesions, 29 of which were equal to or less than 1.5 cm in diameter. FDG DHC depicted 52 of the 78 (67%), 59 of 78 (76%), and 61 of the 78 (78%) lesions, respectively, when image reconstruction was performed with FBP without AC, COSEM without AC, and both COSEM and AC. The detection rate of lesions 1.5 cm or smaller was better with COSEM and AC than with FBP (55% vs 34%, respectively). In addition, COSEM and AC allowed more confidence in the interpretation. None of these differences, however, were significant. Fusion of CT scans and FDG DHC images obtained with COSEM and AC allowed localization of lesions to the skeleton in three patients and to the liver versus adjacent bowel in three patients. Image fusion was especially helpful for localizing lesions in the neck in five patients. Anatomic mapping on fusion images was clinically relevant in 11 patients (31%). CONCLUSION: The COSEM reconstruction algorithm should replace FBP when available. Functional anatomic mapping improved lesion localization in one-third of the patients studied.

L6 ANSWER 31 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:360789 Document No.: PREV200100360789. Myocardial viability assessment by endocardial electroanatomic mapping: Comparison with metabolic imaging and functional recovery after coronary revascularization. Koch, Karl-Christian; vom Dahl, Juergen (1); Wenderdel, Monika; Nowak, Bernd; Schaefer, Wolfgang M.; Sasse, Alexander; Stellbrink, Christoph; Buell, Udalrich; Hanrath, Peter. (1) Medizinische Klinik I, Universitaetsklinikum der RWTH Aachen, Pauwelstrasse 30, D-52057, Aachen: jvomdahl@post.klinikum.rwth-aachen.de Germany. Journal of the American College of Cardiology, (July, 2001) Vol. 38, No. 1, pp. 91-98. print. ISSN: 0735-1097. Language: English. Summary Language: English.
AB OBJECTIVES The objective of this study was to compare electroanatomic mapping for the assessment of myocardial viability with nuclear metabolic

imaging using positron emission computed tomography (PET) and with data on functional recovery after successful myocardial revascularization. BACKGROUND Animal experiments and first clinical studies suggested that electroanatomic endocardial mapping identifies the presence and absence of myocardial viability. METHODS Forty-six patients with prior (gtoreq 2 weeks) myocardial infarction underwent **fluorine-18** fluorodeoxyglucose (FDG) PET and Tc-99m sestamibi single-photon emission computed tomography (SPECT) before mapping and percutaneous coronary revascularization. The left ventricular endocardium was mapped and divided into 12 regions, which were assigned to corresponding nuclear regions. Functional recovery using the centerline method was assessed in 25 patients with a follow-up angiography. RESULTS Regional unipolar electrogram amplitude was 11.0 mV +- 3.6 mV in regions with normal perfusion, 9.0 mV +- 2.8 mV in regions with reduced perfusion and preserved FDG-uptake and 6.5 mV +- 2.6 mV in scar regions ($p < 0.001$ for all comparisons). At a threshold amplitude of 7.5 mV, the sensitivity and specificity for detecting viable (by PET/SPECT) myocardium were 77% and 75%, respectively. In infarct areas with electrogram amplitudes > 7.5 mV, improvement of regional wall motion (RWM) from -2.4 SD/chord +- 1.0 SD/chord to -1.5 SD/chord +- 1.1 SD/chord ($p < 0.01$) was observed, whereas, in infarct areas with amplitudes < 7.5 mV, RWM remained unchanged at follow-up (-2.3 SD/chord +- 0.7 SD/chord to -2.4 SD/chord +- 0.7 SD/chord). CONCLUSIONS These data suggest that the regional unipolar electrogram amplitude is a marker for myocardial viability and that electroanatomic mapping can be used for viability assessment in the catheterization laboratory.

L6 ANSWER 32 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:194375 Document No.: PREV200100194375. Nicotine effects on regional cerebral blood flow and glucose in awake resting tobacco smokers. Domino, E. F. (1); Zubieta, J.-K. (1); Guthrie, S. (1); Ni, L. (1); Koeppe, R. A. (1); Minoshima, S. (1). (1) University of Michigan, Ann Arbor, MI USA. Clinical Pharmacology & Therapeutics, (February, 2001) Vol. 69, No. 2, pp. P28. print. Meeting Info.: Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics Orlando, Florida, USA March 06-10, 2001 American Society for Clinical Pharmacology and Therapeutics. ISSN: 0009-9236. Language: English. Summary Language: English.

L6 ANSWER 33 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2001:167335 Document No.: PREV200100167335. Detection of response to COMT inhibition in FDOPA PET in advanced Parkinson's disease requires prolonged imaging. Ruottinen, Hanna M. (1); Niinivirta, Mikko; Bergman, Jorgen; Oikonen, Vesa; Solin, Olof; Eskola, Olli; Eronen, Esa; Sonninen, Pirkko; Rinne, Urpo K.. (1) Department of Neurology, University of Turku, FIN-20520, Turku: hanna.ruottinen@pet.tyks.fi Finland. Synapse (New York), (April, 2001) Vol. 40, No. 1, pp. 19-26. print. ISSN: 0887-4476. Language: English. Summary Language: English.
AB The aim was to investigate whether the improved 6-(18F)fluoro-L-dopa (FDOPA) availability induced by catechol-O-methyltransferase (COMT) inhibition can be more clearly seen during late than during standard (early) imaging in FDOPA uptake in Parkinson's disease (PD) patients with severe dopaminergic hypofunction. Six PD patients and six healthy controls were investigated up to 3.5 h after FDOPA injection with and without a single 400-mg dose of a peripheral COMT inhibitor, entacapone. Prolonged (late) imaging showed a significantly higher increase in FDOPA uptake than standard 1.5 h (early) imaging after entacapone both in controls and in PD patients. The increase in the (putamen-occipital):occipital ratios was 37.4% during early and 70.4% during late imaging in controls. In PD patients, there was no significant change in the ratios during early imaging, but the late imaging showed a significant increase in the putamen-to-occipital ratio of 54.2% after COMT inhibition. Late imaging reveals more clearly the prolonged FDOPA availability induced by COMT inhibition leading to higher cumulated striatal activity compared with

early imaging. This might be worth considering in FDOPA studies, especially if investigations are planned to do without blood sampling. Late imaging shows the storing potential of FDA better than is seen during early FDOPA PET imaging after entacapone administration. In patients with severe presynaptic dopaminergic hypofunction, its detection requires prolonged imaging.

L6 ANSWER 34 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2000:456529 Document No.: PREV200000456529. Prognostic value of (18F)fluorodeoxyglucose positron emission tomographic scanning in patients with thyroid cancer. Wang, Weiping; Larson, Steven M.; Fazzari, Melissa; Tickoo, Satish K.; Kolbert, Katherine; Sgouros, George; Yeung, Henry; Macapinlac, Homer; Rosai, Juan; Robbins, Richard J. (1). (1) Endocrinology Service, Department of Medicine, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY, 10021 USA. Journal of Clinical Endocrinology & Metabolism, (March, 2000) Vol. 85, No. 3, pp. 1107-1113. print. ISSN: 0021-972X. Language: English. Summary Language: English.
AB Poorly differentiated thyroid cancer lesions often lose the ability to concentrate radioactive (131I)iodine (RAI) and exhibit increased metabolic activity, as evidenced by enhanced glucose uptake. We incorporated (18F)fluorodeoxyglucose (FDG) **positron emission tomography** (PET) scanning into the routine follow-up of a cohort of thyroid cancer patients undergoing annual evaluations. One hundred and twenty-five patients who had previous thyroidectomies were included. They had diagnostic RAI whole body scans, serum thyroglobulin measurements, and additional imaging studies as clinically indicated. During 41 months of follow-up, 14 patients died. Univariate analysis demonstrated that survival was reduced in those with age over 45 yr, distant metastases, PET positivity, high rates of FDG uptake, and high volume of the FDG-avid disease (> 125 mL). Survival did not correlate with gender, RAI uptake, initial histology, or grade. Multivariate analysis demonstrated that the single strongest predictor of survival was the volume of FDG-avid disease. The 3-yr survival probability of patients with FDG volumes of 125 mL or less was 0.96 (95% confidence interval, 0.91, 1.0) compared with 0.18 (95% confidence interval, 0.04, 0.85) in patients with FDG volume greater than 125 mL. Only 1 death (of leukemia) occurred in the PET-negative group (n = 66). Of the 10 patients with distant metastases and negative PET scans, all were alive and well. Patients over 45 yr with distant metastases that concentrate FDG are at the highest risk. Once distant metastases are discovered in patients with differentiated thyroid carcinoma, FDG-PET can identify high and low risk subsets. Subjects with a FDG volume greater than 125 mL have significantly reduced short term survival.

L6 ANSWER 35 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2000:503085 Document No.: PREV200000503085. General method to label antisense oligonucleotides with radioactive halogens for pharmacological and imaging studies. Kuhnast, Bertrand; Dolle, Frederic; Terrazzino, Salvatore; Rousseau, Bernard; Loc'h, Christian; Vaufrey, Francoise; Hinnen, Francoise; Doignon, Isabelle; Pillon, Florence; David, Christelle; Crouzel, Christian; Tavitian, Bertrand (1). (1) INSERM U334, CEA-SHFJ, 4 Place du General Leclerc, F-91401, Orsay Cedex France. Bioconjugate Chemistry, (September/October, 2000) Vol. 11, No. 5, pp. 627-636. print. ISSN: 1043-1802. Language: English. Summary Language: English.
AB Evaluation of oligonucleotides for biomedical applications requires different in vivo and in vitro approaches (pharmacokinetics, biodistribution, macro- and microimaging, metabolism, ...), that are performed with different radioisotopes according to the temporal and spatial resolution needed. A method to introduce radioactive isotopes of halogens (fluorine, bromine, and iodine) in a small and stable molecule has been developed. Radiosynthons can then be conjugated with any given oligonucleotide in one step to create the appropriate radiotracer. This general radiolabeling procedure for oligonucleotides is efficient to synthesize 18F-, 76Br-, and 125I-oligonucleotides for biological needs.

Applications of the method to biodistribution, metabolism, in vivo and ex vivo imaging of 125I- and 18F-labeled oligonucleotides are reported.

L6 ANSWER 36 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2000:285745 Document No.: PREV200000285745. Effectiveness of FDG PET in the detection of recurrent squamous cell carcinoma of the head and neck. Li, P. Y. (1); Mozley, P. D. (1); Zhuang, H. M. (1); Machtay, M. (1); Dinitis, A. (1); Rosenthal, D. I. (1); Alavi, A. A. (1). (1) University of Pennsylvania, Philadelphia, PA USA. Journal of Nuclear Medicine, (May, 2000) Vol. 41, No. 5 Suppl., pp. 32P. print. Meeting Info.: 47th Annual Meeting of the Society of Nuclear Medicine St. Louis, Missouri, USA June 03-07, 2000 Society of Nuclear Medicine. ISSN: 0161-5505. Language: English. Summary Language: English.

L6 ANSWER 37 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1999:410214 Document No.: PREV199900410214. Etiology of Parkinson's disease: Contributions from 18F-DOPA **positron emission tomography**. Piccini, Paola (1); Brooks, David J. (1). (1) Medical Research Council, Cyclotron Unit, Hammersmith Hospital, London UK. Stern, G. M. [Editor]. Advances in Neurology, (1999) Vol. 80, pp. 227-231. Advances in Neurology; Parkinson's disease. Publisher: Lippincott Williams and Wilkins 227 East Washington Square, Philadelphia, Pennsylvania 19106, USA. Meeting Info.: Selected Papers from the Twelvth International Symposium on Parkinson's Disease ISSN: 0091-3952. ISBN: 0-7817-1598-9. Language: English.

L6 ANSWER 38 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2000:98495 Document No.: PREV200000098495. Detection of treated liver metastases using **fluorine-18**-fluordeoxyglucose (FDG) and **positron emission tomography** (PET.
Mantaka, Panagiota; Dimitrakopoulou Strauss, Antonia (1); Strauss, Ludwig G.; Moehler, Markus; Goldschmidt, Hartmut; Oberdorfer, Franz; Kontaxakis, George; Van Kaick, Gerhard. (1) Department of Oncological Diagnostics and Therapy, Medical PET-Group, Biological Imaging, German Cancer Research Center, Im Neuenheimer Feld 280, D-69120, Heidelberg Germany. Anticancer Research, (Sept. Oct., 1999) Vol. 19, No. 5C, pp. 4443-4450. ISSN: 0250-7005. Language: English. Summary Language: English.
AB The aim of the study was the evaluation of the detectability of treated liver metastases using one FDG-PET measurement. The study includes 42 patients (80 lesions) from different primary tumours. Standardized Uptake Values (SUV) as well as the tumour to liver Ratio (T/L) were used for evaluation. A T/L > 1.0 was considered to be pathological. Clinical follow-up data for at least 6 months were used as a reference. The median value of the FDG-uptake was 2.9 SUV in all liver metastases. The sensitivity based on a T/L ratio exceeding 1.0 was 82.5% (66/80 lesions). 25 of 80 (31%) lesions had a ratio T/L higher than 2.0 and were clearly visualized by PET. Negative results with a ratio T/L < 1.0 were raised in 14 of 80 treated metastatic lesions (17.5%). Although these metastases were hypometabolic, they were correctly classified due to the image correlation with computed tomography (CT) or magnetic resonance (MR) images or due to a baseline FDG-study prior to the onset of therapy. False positive results were not noted in this study. FDG-PET is a reliable method for the evaluation of treated liver metastases. A baseline FDG study prior to therapy is preferable for the interpretation.

L6 ANSWER 39 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1999:390149 Document No.: PREV199900390149. Early detection and accurate description of extent of metastatic bone disease in breast cancer with fluoride ion and **positron emission tomography**
. Schirrmeister, Holger; Guhlmann, Albrecht; Kotzerke, Joerg; Santjohanser, Claudia; Kuehn, Thorsten; Kreienberg, Rolf; Messer, Peter; Nuessle, Karin; Elsner, Klaus; Glatting, Gerhard; Traeger, Harald; Neumaier, Bernd; Diederichs, Christoph; Reske, Sven N. (1). (1) Department

of Nuclear Medicine, University of Ulm, Robert Koch Strasse 8, D-89070, Ulm Germany. Journal of Clinical Oncology, (Aug., 1999) Vol. 17, No. 8, pp. 2381-2389. ISSN: 0732-183X. Language: English. Summary Language: English.

AB Purpose: Previous studies have shown that bone metastases are revealed by magnetic resonance imaging (MRI) or bone marrow scintigraphy several months before they are visible by conventional bone scintigraphy (BS). We present a new approach for detecting bone metastases in patients with breast cancer. We compared findings obtained with fluoride ion (F-18) and **positron emission tomography** (PET) with those obtained with conventional BS. Patients and Methods: Thirty-four breast cancer patients were prospectively examined using F-18-PET and conventional BS. F-18-PET and BS were performed within 3 weeks of each other. Metastatic bone disease was previously known to be present in six patients and was suspected (bone pain or increasing levels of tumor markers, Ca2+, alkaline phosphatase) in 28 patients. Both imaging modalities were compared by patient-by-patient analysis and lesion-by-lesion analysis, using a five-point scale for receiver operating characteristic (ROC) curve analysis. Apanel of reference methods was used, including MRI (28 patients), planar x-ray (17 patients), and spiral computed tomography (four patients). Results: With F-18-PET, 64 bone metastases were detected in 17 patients. Only 29 metastases were detected in 11 patients with BS. As a result of F-18-PET imaging, clinical management was changed in four patients (11.7%). For F-18-PET, the area under the ROC curve was 0.99 on a lesion basis (for BS, it was 0.74; $P < .05$) and 1.00 on a patient basis (for BS, it was 0.82; $P < .05$). Conclusion: F-18-PET demonstrates a very early bone reaction when small bone marrow metastases are present, allowing accurate detection of breast cancer bone metastases. This accurate detection has a significant effect on clinical management, compared with the effect on management brought about by detection with conventional BS.

L6 ANSWER 40 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

2000:29883 Document No.: PREV200000029883. Optimal interpretation of FDG PET in the diagnosis, staging and management of pancreatic carcinoma. Delbeke, Dominique (1); Rose, D. Michael; Chapman, William C.; Pinson, C. Wright; Wright, J. Kelly; Beauchamp, R. Daniel; Shyr, Yu; Leach, Steven D.. (1) Department of Radiology and Radiological Sciences, Vanderbilt University Medical Center, 21st Ave. S. and Garland Ave., Nashville, TN, 37232-2675 USA. Journal of Nuclear Medicine, (Nov., 1999) Vol. 40, No. 11, pp. 1784-1791. ISSN: 0161-5505. Language: English. Summary Language: English.

AB This study had two purposes: to optimize the semiquantitative interpretation of 18F-fluorodeoxyglucose (FDG) PET scans in the diagnosis of pancreatic carcinoma by analyzing different cutoff levels for the standardized uptake value (SUV), with and without correction for serum glucose level (SUVgluc); and to evaluate the usefulness of FDG PET when used in addition to CT for the staging and management of patients with pancreatic cancer. Methods: Sixty-five patients who presented with suspected pancreatic carcinoma underwent whole-body FDG PET in addition to CT imaging. The PET images were analyzed visually and semiquantitatively using the SUV and SUVgluc. The final diagnosis was obtained by pathologic ($n = 56$) or clinical and radiologic follow-up ($n = 9$). The performance of CT and PET at different cutoff levels of SUV was determined, and the impact of FDG PET in addition to CT on patient management was reviewed retrospectively. Results: Fifty-two patients had proven pancreatic carcinoma, whereas 13 had benign lesions, including chronic pancreatitis ($n = 10$), benign biliary stricture ($n = 1$), pancreatic complex cyst ($n = 1$) and no pancreatic pathology ($n = 1$). Areas under receiver operating characteristic curves were not significantly different for SUV and SUVgluc. Using a cutoff level of 3.0 for the SUV, FDG PET had higher sensitivity and specificity than CT in correctly diagnosing pancreatic carcinoma (92% and 85% versus 65% and 61%). There were 2 false-positive PET (chronic pancreatitis, also false-positive with CT) and 4

false-negative PET (all with true-positive CT, abnormal but nondiagnostic) examinations. There were 5 false-positive CT (4 chronic pancreatitis and 1 pancreatic cyst) and 18 false-negative CT (all with true-positive FDG PET scans) examinations. FDG PET clarified indeterminate hepatic lesions or identified additional distant metastases (or both) in 7 patients compared with CT. Overall, FDG PET altered the management of 28 of 65 patients(43%). Conclusion: FDG PET is more accurate than CT in the detection of primary tumors and in the clarification and identification of hepatic and distant metastases. The optimal cutoff value of FDG uptake to differentiate benign from malignant pancreatic lesions was 2.0. Correction for serum glucose did not significantly improve the accuracy of FDG PET. Although FDG PET cannot replace CT in defining local tumor extension, the application of FDG PET in addition to CT alters the management in up to 43% of patients with suspected pancreatic cancer.

L6 ANSWER 41 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1999:501771 Document No.: PREV199900501771. FDG PET can replace bone scintigraphy in primary staging of malignant lymphoma. Moog, Florian (1); Kotzerke, Joerg; Reske, Sven N.. (1) Department of Nuclear Medicine, Ludwig-Maximilian-Universitaet Muenchen, Marchionini-Str. 15, D-81366, Muenchen Germany. Journal of Nuclear Medicine, (Sept., 1999) Vol. 40, No. 9, pp. 1407-1413. ISSN: 0161-5505. Language: English. Summary Language: English.

AB Recent studies indicated that 18F-fluorodeoxyglucose (FDG) PET may be more accurate than CT in staging nodal and extranodal malignant lymphoma. The objective of this study was to compare conventional bone scintigraphy as an established skeletal staging procedure with PET using FDG in the detection of osseous involvement in malignant lymphoma. Methods: Whole-body PET-based staging studies of 56 consecutive patients with proven Hodgkin's disease (n = 34) or non-Hodgkin's lymphoma (n = 22) were compared with the results of bone scintigraphy. Positive PET or bone scintigraphic findings were confirmed, if possible, by biopsy, MRI, CT or radiographic investigations. Results: Of the 56 patients studied, 12 were found to have skeletal involvement on both studies (PET, 30 regions; bone scintigraphy, 20 regions). Findings were confirmed in all 12 patients. FDG PET detected an additional 12 involved regions in 5 patients. This was subsequently verified in 3 patients, although the other 2 casesremained unresolved. Conversely, bone scintigraphy revealed five abnormalities compatible with lymphoma in 5 patients. Three of these lesions were found to be erroneous; final evaluation of the remaining two findings was not possible. Conclusion: FDG PET is suitable for identifying osseous involvement in malignant lymphoma with a high positive predictive value and is thereby more sensitive and specific than bone scintigraphy.

L6 ANSWER 42 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1999:303987 Document No.: PREV199900303987. Functional imaging and detection of local recurrence in soft tissue sarcomas by **positron emission tomography**. Schwarzbach, Matthias (1); Willeke, Frank; Dimitrakopoulou-Strauss, Antonia; Strauss, Ludwig G.; Zhang, Yu-Min; Mechtersheimer, Gunhild; Hinz, Ulf; Lehnert, Thomas; Herfarth, Christian. (1) Department of Surgery, University of Heidelberg, Im Neuenheimer Feld 110, 69120, Heidelberg Germany. Anticancer Research, (March-April, 1999) Vol. 19, No. 2B, pp. 1343-1350. ISSN: 0250-7005. Language: English. Summary Language: English.

AB Background: Besides anatomically-based radio-diagnostics, functional imaging may be used for characterizing soft tissue sarcomas (STS). This study evaluates **positron emission tomography** (PET) with three different radiotracers (**fluorine-18** deoxyglucose (FDG), carbon-11 aminoisobutyric acid (AIB) and oxygen-15-labeled water (O15-water)) for imaging STS and the detection of local recurrence. Patients and Methods: 21 patients presented with 9 primary STS, 5 recurrent STS and 10 lesions suspicious for local recurrence (radiological tomography). Standardized uptake values (SUV)

were calculated in tumor and normal tissues (muscle/blood vessels). Surgery with pathological examination or follow-up data were referred to as control criteria. Results: All tracers accumulated in STS with no difference between primary and locally recurrent tumors. The uptake in STS was increased compared to muscle (FDG, $P < 0.0001$; AIB, $P = 0.0039$; O15-water, $P = 0.002$) and to blood vessels for FDG ($P < 0.0001$) as well as AIB ($P = 0.0038$). Of 10 patients with suspected recurrence, 6 presented neither PET criteria for recurrence nor local failure in the specimens or during follow-up, while 4 cases with positive PET scans were ultimately diagnosed with local failure. Conclusion: Besides FDG, AIB and O15-water were shown to accumulate in primary and recurrent STS of different histologic type. A precise differentiation from normal muscle was found for all tracers. FDG and AIB differentiated viable tumor from blood vessels. PET using FDG, AIB and O15-water is suitable for functional imaging of STS and the detection of sarcoma recurrence.

L6 ANSWER 43 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2000:220629 Document No.: PREV200000220629. **Positron emission tomography** (PET): Experience with a large-field-of-view three-dimensional PET scanner. Hicks, Rodney J. (1); Binns, David S.; Fawcett, Meagan E.; Ware, Robert E.; Kalff, Victor; McKenzie, Allan F.; Zalcberg, John P.; Peters, Lester J.. (1) Peter MacCallum Cancer Institute, A'Beckett Street, Melbourne, VIC, 3000 Australia. Medical Journal of Australia, (Nov. 15, 1999) Vol. 171, No. 10, pp. 529-532. ISSN: 0025-729X. Language: English. Summary Language: English.

AB **Positron emission tomography** (PET) using **fluorine-18** fluorodeoxyglucose (FDG) is an accurate technique for staging and therapeutic monitoring in oncology. We evaluated our use of FDG PET in an oncology centre after our first 2100 studies, and summarise our experience of PET for the major referral indications. Optimised for clinical service, PET offers lower scanning costs and therefore improved cost-effectiveness.

L6 ANSWER 44 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2000:17747 Document No.: PREV200000017747. Comparison of ECG-gated 18F-FDG-PET with echocardiography to detect segmental wall motion abnormalities in coronary heart disease. Helber, Uwe (1); Franow, Andreas (1); Logemann, Joerg (1); Machulla, Hans J. (1); Mueller-Schauenburg, Wolfgang (1); Bares, Roland (1); Hoffmeister, Hans M. (1). (1) Univ of Tuebingen, Tuebingen Germany. Circulation, (Nov. 2, 1999) Vol. 110, No. 18 SUPPL., pp. I.452. Meeting Info.: 72nd Scientific Sessions of the American Heart Association Atlanta, Georgia, USA November 7-10, 1999 ISSN: 0009-7322. Language: English.

L6 ANSWER 45 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1998:498221 Document No.: PREV199800498221. Detection of bone metastases in breast cancer by 18FDG PET: Differing metabolic activity in osteoblastic and osteolytic lesions. Cook, Gary J. (1); Houston, Stephen; Rubens, Robert; Maisey, Michael N.; Fogelman, Ignac. (1) Dep. Nuclear Med., Guys Hosp., London SE1 9RT UK. Journal of Clinical Oncology, (Oct., 1998) Vol. 16, No. 10, pp. 3375-3379. ISSN: 0732-183X. Language: English.

AB Purpose: 99m-Technetium methylene diphosphonate (99mTc MDP) bone scintigraphy is currently the method of choice for the detection of bone metastases, but 18F-fluoro-deoxy-D-glucose **positron emission tomography** (18FDG PET) offers superior spatial resolution and improved sensitivity. We have compared 18FDG PET with 99mTc MDP bone scintigraphy in patients with skeletal metastases from breast cancer and have analyzed the data in subgroups based on radiographic characteristics of lesions. Patients and Methods: Twenty-three women with breast cancer and confirmed bone metastases were studied with both 99mTc MDP bone scintigraphy and 18FDG PET, and the number of lesions detected and the quantitation of uptake (standardized uptake values (SUVs)) of

18FDG in osteolytic and osteoblastic metastases were compared. Survival was compared for both lytic and blastic bone metastases and for patients with high and low accumulation of 18FDG. Results: 18FDG PET detected more lesions than 99mTc MDP scintigraphy (mean, 14.1 and 7.8 lesions, respectively; $P < .01$). However, 18FDG detected fewer bone metastases compared with 99m-Tc MDP scintigraphy in a subgroup of patients with osteoblastic disease ($P < .05$). Higher SUVs were observed for osteolytic than osteoblastic disease (mean, 6.77 and 0.95, respectively; $P < .01$). Survival was lower in patients with osteolytic disease compared with the remainder ($P = .01$). A difference in survival was not found for those patients with high SUVs (> 3.6; $P = .4$). Conclusion: 18FDG PET is superior to bone scintigraphy in the detection of osteolytic breast cancer metastases, which led to a poorer prognosis. In contrast, osteoblastic metastases show lower metabolic activity and are frequently undetectable by PET. The biologic explanation for this observation remains to be elucidated.

L6 ANSWER 46 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

1998:325593 Document No.: PREV199800325593. FDG PET: Elevated plasma glucose reduces both uptake and detection rate of pancreatic malignancies. Diederichs, Christoph G.; Staib, Ludger; Glatting, Gerhard; Beger, Hans Guenther; Reske, Sven Norbert (1). (1) Abteilung Nuklearmedizin, Klinikum Univ. Ulm, Robert-Koch-Str. 8, D-89070 Ulm Germany. Journal of Nuclear Medicine, (June, 1998) Vol. 39, No. 6, pp. 1030-1033. ISSN: 0161-5505. Language: English.

AB The aim of the study was to evaluate the effects of elevated plasma glucose levels on tumor **detection. Methods:** One-hundred and seventy-one fasted patients (100 malignant pancreatic tumors, 46 chronic pancreatitis and 25 patients with other benign pancreatic lesions) were studied with 18F-fluorodeoxyglucose (FDG) PET before planned resective pancreatic surgery. Nineteen of 171 patients had elevated plasma glucose levels above 130 mg/dI, and 24 of 171 had diabetes mellitus. Standard uptake values (SUVs) with and without glucose correction, tumor-to-muscle ratios and tumor-to-liver ratios were measured of the pancreatic lesion respective of the area with the highest uptake within the pancreas. The original qualitative PET reports concerning the dignity of the pancreatic lesion were translated into a five-point malignancy scale. Tumor detection rates and SUVs were compared according to plasma glucose levels above and below 130 mg/di, the presence of diabetes and by using receiver operating characteristic (ROC) analysis. Results: The detection rates (and mean SUVs) for pancreatic malignancies were 86% and 42% (4.2 and 2.3) if fasted plasma glucose levels were below and above 130 mg/dl, respectively. The sensitivities (and mean SUVs of malignant tumors) were 83% and 69% (3.3 and 2.5) for patients without and with known diabetes. Areas under ROC curves were nearly equal for glucose corrected SUV and visual qualitative results (0.86 and 0.85), followed by uncorrected SUV (0.83), tumor-to-liver ratios (0.80) and tumor-to-muscle ratios (0.79). SUVs for chronic pancreatitis, muscle and liver had a tendency to increase with elevated plasma glucose levels. Conclusion: Negative PET results of patients with elevated plasma glucose should be interpreted with caution.

L6 ANSWER 47 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

1998:295506 Document No.: PREV199800295506. FDG-PET in the staging of low stage malignant testicular germ cell tumors. Bender, Hans; Alberts, Peter; Yilmaz, Hasan; Shoeneich, Georg; Ruhlmann, Juergen; Biersack, Hans-Juergen; Mueller, Stefan C.. Bonn Germany. Journal of Urology, (May, 1998) Vol. 159, No. 5 SUPPL., pp. 316. Meeting Info.: 93rd Annual Meeting of the American Urological Association, Inc. San Diego, California, USA May 30-June 4, 1998 American Urological Association. ISSN: 0022-5347. Language: English.

L6 ANSWER 48 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

1998:223481 Document No.: PREV199800223481. Predictive value of dobutamine echocardiography and **positron emission tomography** in identifying hibernating myocardium in patients with postischaemic heart failure. Pagano, D.; Bonser, R. S.; Townend, J. N.; Ordoubadi, F.; Lorenzoni, R.; Camici, P. G. (1). (1) MRC Cyclotron Unit, Hammersmith Hosp., Duncane Road, London W12 0NN UK. Heart (London), (March, 1998) Vol. 79, No. 3, pp. 281-288. ISSN: 1355-6037. Language: English.

AB Objective-To compare the predictive value of dobutamine echocardiography (DE) and **positron emission tomography** (PET) in identifying reversible chronic left ventricular (LV) dysfunction (hibernating myocardium) in patients with coronary artery disease (CAD) and overt heart failure. Patients-30 patients (four women) with CAD and heart failure undergoing coronary artery bypass grafting (CABG). Methods-Myocardial viability was assessed with DE (5 and 10 mug/kg/min) and PET with (18F) 2-fluoro-2-deoxy-D-glucose (FDG) under hyperinsulinaemic euglycaemic clamp. Regional (echo) and global LV function (MUGA) were assessed at baseline and six months after CABG. Results-192 of the 336 (57%) dysfunctional LV segments improved function following CABG (hibernating) and the LV ejection fraction (EF) increased from 23(7) to 32(9)% ($p < 0.0001$) (in 17 patients > 5%). DE and PET had similar positive predictive values (68% and 66%) in the identification of hibernating myocardium, but DE had a significantly lower negative predictive value than PET (54% v 96%; $p < 0.0001$). A significant linear correlation was found between the number of PET viable segments and the changes in EF following CABG ($r = 0.65$; $p = 0.0001$). Stepwise logistic regression identified the number of PET viable segments as an independent predictor of improvement in EF > 5%, whereas the number of DE viable segments, the baseline LVEF, and wall motion were not. Conclusions-DE has a higher false negative rate than PET in identifying recoverable LV dysfunction in patients with severe postischaemic heart failure. The amount of PET viable myocardium correlates with the functional outcome following CABG.

L6 ANSWER 49 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

1998:337899 Document No.: PREV199800337899. Potential cost savings by F-18-FDG PET as an alternative to second-look laparotomy in ovarian cancer. Smith, G. T.; Hubner, K. F.; McDonald, T.; Thie, J. A.. Univ. Tenn. Med. Cent., Knoxville, TN USA. Journal of Nuclear Medicine, (May, 1998) Vol. 39, No. 5 SUPPL., pp. 249P. Meeting Info.: 45th Annual Meeting of the Society of Nuclear Medicine Toronto, Ontario, Canada June 7-11, 1998 Society of Nuclear Medicine. ISSN: 0161-5505. Language: English.

L6 ANSWER 50 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

1998:337387 Document No.: PREV199800337387. Clinical utility of F-18 FDG PET scans in thyroid cancer patients with NEG total body I-131 scans. Seabold, J. E. (1); Lawson, M. A. (1); Bishop, H. A.; Gurll, N. J. (1); Gupta, N. C.; Kirchner, P. T. (1). (1) Univ. Iowa Hosp. Clinic, Iowa City, IA USA. Journal of Nuclear Medicine, (May, 1998) Vol. 39, No. 5 SUPPL., pp. 123P. Meeting Info.: 45th Annual Meeting of the Society of Nuclear Medicine Toronto, Ontario, Canada June 7-11, 1998 Society of Nuclear Medicine. ISSN: 0161-5505. Language: English.

L6 ANSWER 51 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

1998:337382 Document No.: PREV199800337382. Prospective evaluation of recurrence of head and neck cancer using sequential (F-18) FDG-PET imaging. Lowe, V. I.; Dumphy, F. R.; Boyd, J. H.; Kim, H. J.; Dunleavy, Teresa; Stack, B. C., Jr.; Fletcher, J. W.. St. Louis Univ. Health Sci. Center, St. Louis, MO USA. Journal of Nuclear Medicine, (May, 1998) Vol. 39, No. 5 SUPPL., pp. 122P. Meeting Info.: 45th Annual Meeting of the Society of Nuclear Medicine Toronto, Ontario, Canada June 7-11, 1998 Society of Nuclear Medicine. ISSN: 0161-5505. Language: English.

L6 ANSWER 52 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1998:337381 Document No.: PREV199800337381. (F-18) FDG-PET imaging of early stage laryngeal cancer. Lowe, V. I.; Kim, H. J.; Boyd, J. H.; Eisenbeis, J. F.; Fletcher, J. W.. St. Louis Univ. Health Sci. Center, St. Louis, MO USA. Journal of Nuclear Medicine, (May, 1998) Vol. 39, No. 5 SUPPL., pp. 122P. Meeting Info.: 45th Annual Meeting of the Society of Nuclear Medicine Toronto, Ontario, Canada June 7-11, 1998 Society of Nuclear Medicine. ISSN: 0161-5505. Language: English.

L6 ANSWER 53 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1998:337277 Document No.: PREV199800337277. (F-18)FDG PET predicts the development of Alzheimer's disease in memory impaired patients without dementia. Minoshima, S. (1); Giordani, B.; Berent, S.; Frey, K. A.; Foster, N. L.; Kuhl, D. E.. (1) Dep. Internal Med., Univ. Mich., Ann Arbor, MI USA. Journal of Nuclear Medicine, (May, 1998) Vol. 39, No. 5 SUPPL., pp. 96P. Meeting Info.: 45th Annual Meeting of the Society of Nuclear Medicine Toronto, Ontario, Canada June 7-11, 1998 Society of Nuclear Medicine. ISSN: 0161-5505. Language: English.

L6 ANSWER 54 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1998:337106 Document No.: PREV199800337106. Preliminary clinical study of PET with F-18 alpha methyl tyrosine (FMT) in patients with brain tumor. Inoue, T.; Shibazaki, T.; Tomiyoshi, K.; Oriuchi, N.; Suzuki, H.; Tomaru, Y.; Aoyagi, K.; Amano, S.; Alyafei, S.; Sarwar, M.; Ahmed, K.; Aoki, J.; Endo, K.. Gunma Univ. Sch. Med., Gunma Japan. Journal of Nuclear Medicine, (May, 1998) Vol. 39, No. 5 SUPPL., pp. 53P. Meeting Info.: 45th Annual Meeting of the Society of Nuclear Medicine Toronto, Ontario, Canada June 7-11, 1998 Society of Nuclear Medicine. ISSN: 0161-5505. Language: English.

L6 ANSWER 55 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1998:337101 Document No.: PREV199800337101. Detection of recurrent brain tumors using C-11-aminocyclobutanecarboxylic acid (C-11-ACBC) and **positron emission tomography** (PET. Hubner, K. F.; Thie, J. A.; Smith, G. T.; Keller, I. B.; Kliefoth, A. B.; Campbell, S. K.; Buonocore, E.. Univ. Tennessee Med. Cent., Knoxville, TN USA. Journal of Nuclear Medicine, (May, 1998) Vol. 39, No. 5 SUPPL., pp. 52P. Meeting Info.: 45th Annual Meeting of the Society of Nuclear Medicine Toronto, Ontario, Canada June 7-11, 1998 Society of Nuclear Medicine. ISSN: 0161-5505. Language: English.

L6 ANSWER 56 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1997:403268 Document No.: PREV199799709471. Detection of residual tumours in postchemotherapy testicular cancer by FDG-PET. Nuutinen, J. M. (1); Leskinen, S.; Elomaa, I.; Minn, H.; Varpula, M.; Solin, O.; Soderstrom, K.-O.; Hoensuu, J.; Salminen, E.. (1) Dep. Oncol. Radiotherapy, Univ. Turku, 20520 Turku Finland. European Journal of Cancer, (1997) Vol. 33, No. 8, pp. 1234-1241. ISSN: 0959-8049. Language: English.
AB The aim of this study was to investigate whether 2-(F-18)-fluoro-2-deoxy-D-glucose-**positron emission tomography** (FDG-PET) could reliably detect testicular cancer in patients following chemotherapy. Twenty FDG-PET studies were performed on 15 patients with metastatic seminoma or non-seminoma. Tracer uptake in the PET study was measured by calculating the standardised uptake value (SUV) for the tracer. Nine lesions out of 20 were judged to be positive based on high FDG uptake. Three proved to represent inflammatory changes in non-cancerous tissue. Eleven PET studies were negative. In one of these, viable tumour was found at retroperitoneal lymphadenectomy. The median SUV values of metastatic tumours and benign residual tumours were 2.7 (range 1.6-9.5, n = 10) and 1.7 (range 0.7-5.5, n = 15), respectively. The large overlap of SUVs between these groups was due to the relatively high FDG uptake in inflammatory tissue (median 4.2, range 2.0-5.S, n = 4). The results indicate that FDG imaging of metastatic testicular cancer after chemotherapy has limited value because of a potentially high accumulation

of FDG in inflammatory tissues.

L6 ANSWER 57 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1997:326117 Document No.: PREV199799625320. Assessment of myocardial viability with N-13 ammonia/18-F FDG PET: Comparison between visual and quantitative analysis. Duvernoy, C. S.; Matsunari, I.; Nekolla, S.; Haas, F.; Picker, W.; Meyer, C.; Kosa, I.; Schwaiger, M.. Nuklearmed. Klin. Poliklinik Technischen, Univ. Muenchen, Munich Germany. Journal of Nuclear Medicine, (1997) Vol. 38, No. 5 SUPPL., pp. 55P. Meeting Info.: 44th Annual Meeting of the Society of Nuclear Medicine San Antonio, Texas, USA June 1-5, 1997 ISSN: 0161-5505. Language: English.

L6 ANSWER 58 OF 58 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
1997:478705 Document No.: PREV199799777908. Arbutamine echocardiography to detect tissue viability early after myocardial infarction: Relation with flow-FDG patterns. Melon, P. G. (1); Lancellotti, P.; De Landsheere, C. M.; Degueldre, C.; Pierard, L. A.. (1) Div. Cardiol., Univ. Liege, Liege Belgium. European Heart Journal, (1997) Vol. 18, No. ABSTR. SUPPL., pp. 31. Meeting Info.: XIXth Congress of the European Society of Cardiology together with the 32nd Annual General Meeting of the Association of European Paediatric Cardiologists (AEPC) Stockholm, Sweden August 24-28, 1997 ISSN: 0195-668X. Language: English.

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L13 ANSWER 1 OF 4 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
2002:240225 Document No.: PREV200200240225. Fluorination of proteins and peptides for F-18 positron emission tomography. **Griffiths, Gary L. (1)**. (1) Morristown, NJ USA. ASSIGNEE: Immunomedics, Inc.. Patent Info.: US 6358489 March 19, 2002. Official Gazette of the United States Patent and Trademark Office Patents, (Mar. 19, 2002) Vol. 1256, No. 3, pp. No Pagination. http://www.uspto.gov/web/menu/patdata.html. e-file. ISSN: 0098-1133. Language: English.
AB Thiol-containing peptides can be radiolabeled with **fluorine-18** (F-18) by reacting a peptide comprising a free thiol group with an F-18-bound labelling reagent which also has a group that is reactive with thiols. The resulting F-18-labeled peptides may be targeted to a tissue of interest using bispecific antibodies or bispecific antibody fragments having one arm specific for the F-18-labeled peptide or a low molecular weight hapten conjugated to the F-18-labeled peptide, and another arm specific to the targeted tissue. The targeted tissue is subsequently visualized by clinical positron emission tomography.

L13 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2002 ACS
2002:51893 Document No. 136:123598 Production and use of novel peptide-based agents for use with bi-specific antibodies. Hansen, Hans J.; **Griffiths, Gary L.**; Leung, Shui-on; McBride, William J.; Qu, Zhengxing (USA). U.S. Pat. Appl. Publ. US 20020006379 A1 20020117, 37 pp., Cont.-in-part of U. S. Ser. No. 337,756. (English). CODEN: USXXCO.

APPLICATION: US 2001-823746 20010403. PRIORITY: US 1998-PV90142 19980622; US 1998-PV104156 19981014; US 1999-337756 19990622.

AB The present invention relates to a bi-specific antibody or antibody fragment having at least one arm that is reactive against a targeted tissue and at least one other arm that is reactive against a linker moiety. The linker moiety encompasses a hapten to which antibodies have been prepd. The antigenic linker is conjugated to one or more therapeutic or diagnostic agents or enzymes. The invention provides constructs and methods for producing the bispecific antibodies or antibody fragments, as well as methods for using them.

L13 ANSWER 3 OF 4 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

2001:363569 Document No.: PREV200100363569. Fluorination of proteins and peptides for F-18 positron emission tomography. **Griffiths, Gary L.** . ASSIGNEE: Immunomedics, Inc.. Patent Info.: US 6187284 February 13, 2001. Official Gazette of the United States Patent and Trademark Office Patents, (Feb. 13, 2001) Vol. 1243, No. 2, pp. No Pagination. e-file. ISSN: 0098-1133. Language: English.

AB Thiol-containing peptides can be radiolabeled with **fluorine-18** (18 F) by reacting a peptide comprising a free thiol group with an 18 F-bound labelling reagent which also has a group that is reactive with thiols. The resulting 18 F-labeled peptides may be targeted to a tissue of interest using bispecific antibodies or bispecific antibody fragments having one arm specific for the 18 F-labeled peptide or a low molecular weight hapten conjugated to the 18 F-labeled peptide, and another arm specific to the targeted tissue. The targeted tissue is subsequently visualized by clinical positron emission tomography.

L13 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2002 ACS

1999:184209 Document No. 130:206780 Fluorination of proteins and peptides for F-18 positron emission tomography. **Griffiths, Gary L.** (Immunomedics, Inc., USA). PCT Int. Appl. WO 9911590 A1 19990311, 22 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1998-US18268 19980903. PRIORITY: US 1997-57485 19970903.

AB Thiol-contg. peptides can be radiolabeled with **fluorine-18** (F-18) by reacting a peptide comprising a free thiol group with an F-18-bound labeling reagent which also has a group that is reactive with thiols. The labeling reagent has the general formula 18F-(CH2)m-CR1R2-(CH2)n-X, where n = 0, 1 or 2; m = 0, 1 or 2; and n + m = 0, 1 or 2. X is selected from a group including halides, azide, tosylate, maleimides, etc. R1 and R2 are the same or different and may be, among others, a halide, triflate, hydroxyl, alkyl. The resulting F-18-labeled peptides may be targeted to a tissue of interest using bispecific antibodies or bispecific antibody fragments having one arm specific for the F-18-labeled peptide or a low mol. wt. hapten conjugated to the F-18-labeled peptide, and another arm specific to the targeted tissue. The targeted tissue is subsequently visualized by clin. positron emission tomog.

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L15 ANSWER 1 OF 3 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
2001:77615 Document No.: PREV200100077615. Position emission tomography using gallium-68 chelates. **Griffiths, Gary L.**; McBride, William J. (1). (1) Simmit, NJ USA. ASSIGNEE: Immunomedics, Inc.. Patent Info.: US 6071490 June 06, 2000. Official Gazette of the United States Patent and Trademark Office Patents, (June 6, 2000) Vol. 1235, No. 1, pp. No Pagination. e-file. ISSN: 0098-1133. Language: English.

AB A method of delivering Ga-68 to a target site is effected by administering a bi-specific antibody which specifically binds via a primary binding site to a substance produced by or associated with the target site and which specifically binds via a secondary binding site to a subsequently administered chelate-Ga-68 complex, and allowing the antibody to localize at the target site; optionally administering a clearing agent to clear non-localized bi-specific antibody rapidly from circulation; and administering a chelate-Ga-68 complex comprising Ga-68 chelated to Ac-Phe-Lys(DTPA)-Tyr-Lys(DTPA)-NH2 and allowing the chelate-Ga-68 complex to localize at the target site via specific binding by the secondary binding site of the bi-specific antibody. The targeted complex then can be used for **PET** imaging to give highly resolved images. Alternatively, the Ac-Phe-Lys(DTPA)-Tyr-Lys(DTPA)-NH2 can be conjugated to a targeting antibody fragment and used to elute Ga-68 from a generator, after which it is infused into a patient for direct targeting of the Ga-68 for **PET** imaging. Reagents and methods of making and using them also are provided.

L15 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS
1999:722940 Document No. 131:319712 Positron emission tomography using gallium-68 chelates. **Griffiths, Gary L.**; McBride, William J. (Immunomedics, Inc., USA). PCT Int. Appl. WO 9956792 A1 19991111, 27 pp. DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US9759 19990506. PRIORITY: US 1998-84548 19980507.

AB A method of delivering Ga-68 to a target site is effected by administering a bi-specific antibody which specifically binds via a primary binding site to a substance produced by or assocd. with the target site and which specifically binds via a secondary binding site to a subsequently administered chelate-Ga-68 complex, and allowing the antibody to localize at the target site; optionally administering a clearing agent to clear non-localized bi-specific antibody rapidly from circulation; and administering a chelate-Ga-68 complex comprising Ga-68 chelated to Ac-Phe-Lys(DTPA)-Tyr-Lys(DTPA)-NH2 and allowing the chelate-Ga-68 complex to localize at the target site via specific binding by the secondary binding site of the bi-specific antibody. The targeted complex then can be used for **PET** imaging to give highly resolved images. Alternatively, the Ac-Phe-Lys(DTPA)-Tyr-Lys(DTPA)-NH2 can be conjugated to a targeting antibody fragment and used to elute Ga-68 from a generator, after which it is infused into a patient for direct targeting of the Ga-68 for **PET** imaging. Reagents and methods of making and using them also are provided.

L15 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS
1999:184209 Document No. 130:206780 Fluorination of proteins and peptides for F-18 positron emission tomography. **Griffiths, Gary L.** (Immunomedics, Inc., USA). PCT Int. Appl. WO 9911590 A1 19990311, 22 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN,

CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.
APPLICATION: WO 1998-US18268 19980903. PRIORITY: US 1997-57485 19970903.

AB Thiol-contg. peptides can be radiolabeled with fluorine-18 (F-18) by reacting a peptide comprising a free thiol group with an F-18-bound labeling reagent which also has a group that is reactive with thiols. The labeling reagent has the general formula 18F-(CH2)m-CR1R2-(CH2)n-X, where n = 0, 1 or 2; m = 0, 1 or 2; and n + m = 0, 1 or 2. X is selected from a group including halides, azide, tosylate, maleimides, etc. R1 and R2 are the same or different and may be, among others, a halide, triflate, hydroxyl, alkyl. The resulting F-18-labeled peptides may be targeted to a tissue of interest using bispecific antibodies or bispecific antibody fragments having one arm specific for the F-18-labeled peptide or a low mol. wt. hapten conjugated to the F-18-labeled peptide, and another arm specific to the targeted tissue. The targeted tissue is subsequently visualized by clin. positron emission tomog.

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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	163.48	163.69

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-2.48	-2.48

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